



BUSINESS TECHNOLOGY LEADERSHIP

10 Years After Clinger-Cohen, CIOs Give the Government Failing Grades for...

- » Massive project failures
- » Political cronyism
- » Crushing bureaucracy
- » Billions of tax dollars wasted

BY ALLAN HOLMES Page 50

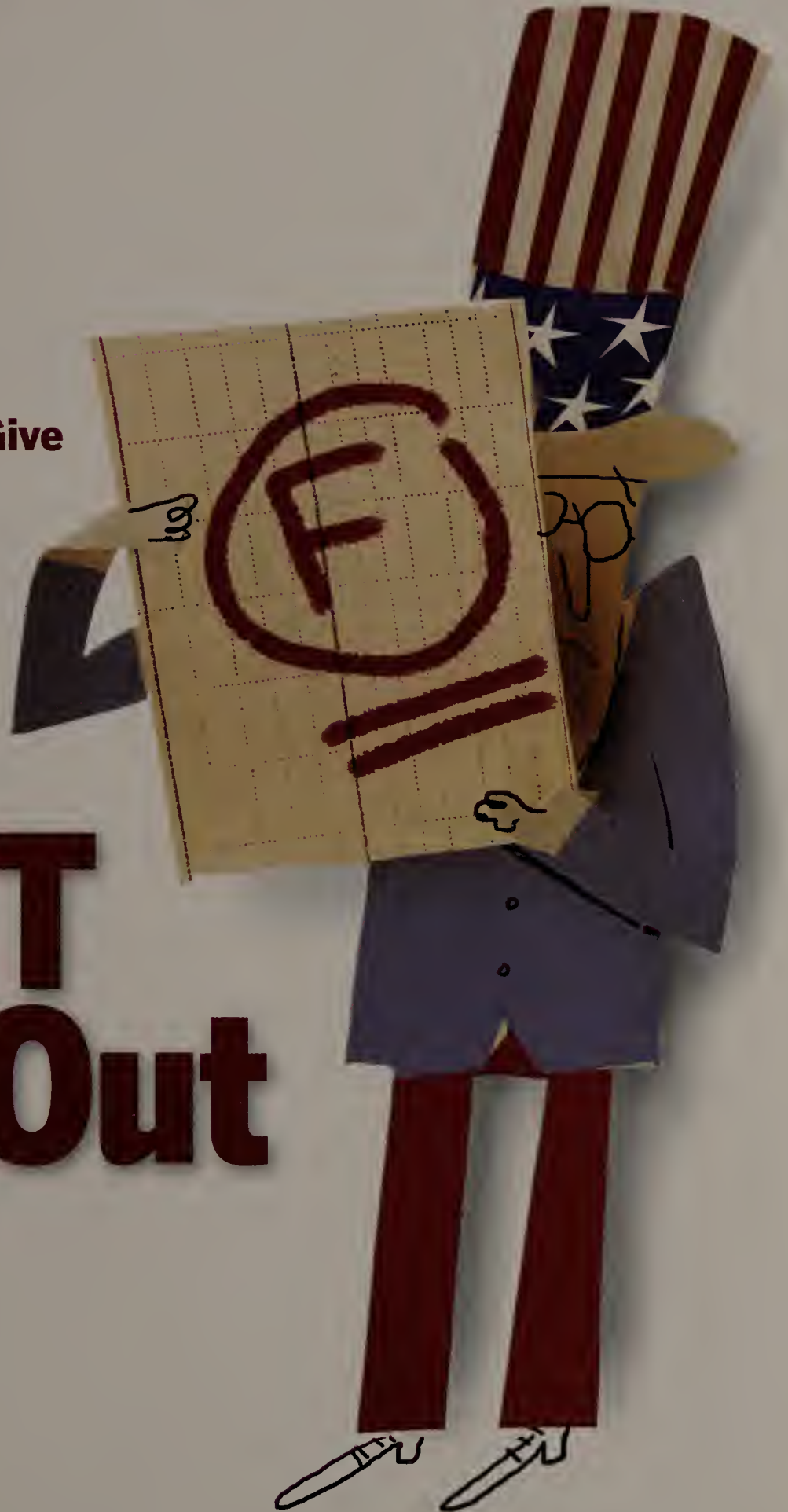
Federal IT FLUNKS Out

MID-MARKET SECURITY

How to build strong security with limited resources Page 66

WHO OWNS THE NET?

In the battle between carriers and content providers, CIOs can be caught in the crossfire Page 74





ready_

ready_

Welcome to the **people**  **ready** business.

Your potential. Our passion.
Microsoft

In a people-ready business, people make it happen. People, ready with software. When you give your people tools that connect, inform, and empower them, they're ready. Ready to collaborate with partners, suppliers, and customers. Ready to streamline the supply chain, beat impossible deadlines, and develop ideas that can sway the course of industry. Ready to build a successful business: a people-ready business. Microsoft. Software for the people-ready business.SM To learn more, visit microsoft.com/peopleready

ready_

ready_

ready_

MEET THE FOREST

(SAY GOODBYE TO THE TREES)

Introducing Intel® vPro™ technology.

It's the most exciting leap in business desktop computing since the introduction of the Intel Pentium processor over a decade ago.

The new Intel vPro technology is much more than just a new processor.

It's a remarkable combination of new technology that is optimized for business. Just about every repetitive task (installing software, upgrading licenses, running diagnostics) is made more simple and more efficient.

Pro Security.

Intel vPro technology is optimized to provide additional security at the hardware level of your desktop PC. Now users can't unknowingly (or even knowingly) disable security features. In fact, Intel vPro technology can even isolate infected PCs from the rest of the network so your company can stay online and productive.

Pro Savings.

Seventy-five percent of all IT budgets is spent on maintenance and integration costs. Intel vPro technology enables third-party

software solutions to manage, secure and inventory your PCs regardless of power state or the health of the OS. Saving you time and money.

Pro Performance.

How is this possible? These benefits all run on dual-core technology that enables a responsive end-user experience. Even with your security and management tasks running in the background.

Now your network of PCs can actually report where they are, what they're doing and how they're feeling.

Intel vPro technology is a desktop architecture that is designed to add functionality, security and manageability to the solutions and equipment you already have installed.

Be Pro Active. Go Pro.



You'll be reading and hearing more about Intel vPro technology in the next few weeks and months. You can find detailed information on how new Intel vPro technology will help your company or organization at **intel.com**.



contents

MAY 15, 2006 | VOL/19 | NO/15

IT Value

TRADING UP | 45

The CEO of the Chicago Mercantile Exchange explains why he wants IT to be innovating constantly. A "View from the Top" interview by Meridith Levinson

MID-MARKET: THE EVOLVING ENTERPRISE

3 WAYS TO DO MORE WITH LESS | 66

CIOs at midsize businesses face many of the same security problems as CIOs at larger companies, but with a lot fewer resources. What they've learned can help you get by on less. By Sarah D. Scalet

Internet Governance

WHO OWNS THE NET? | 74

The idea that all information traveling across the Internet gets treated equally will soon go the way of Pets.com. And that means the way you do business is about to change.

By Ben Worthen

[more »](#)

Government CIOs

COVER STORY | FEDERAL I.T. FLUNKS OUT | 50

Ten years after the Clinger-Cohen Act was passed to fix federal IT, federal IT remains broken.

Government CIOs tell us why. By Allan Holmes

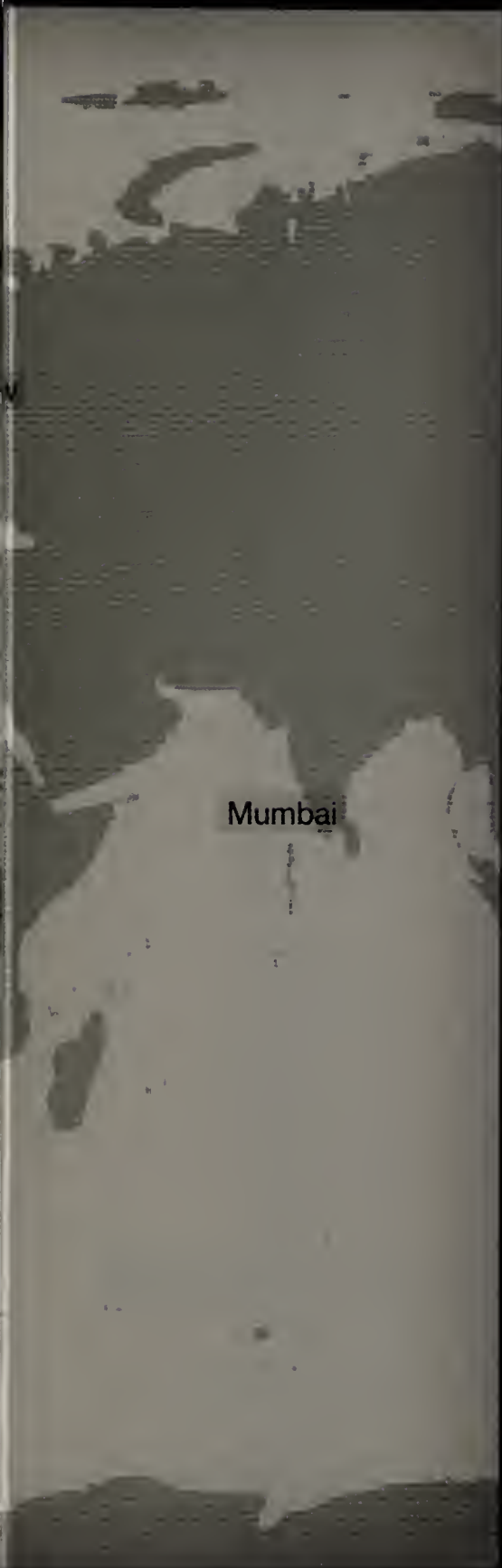
50

Former DHS CIO
Steve Cooper
says federal CIOs
lack authority.



THE WORLD ACCORDING TO

MAYA



Mumbai



Tokyo

Hong Kong

Singapore

Sydney

I have people to support and ideas to enable. Look out world, because my network is coming through.

Dynamic Networking from AT&T gives Maya the IP solutions she needs to connect suppliers, customers and employees worldwide. With IP VPNs, Maya has a cost-effective networking solution that allows users to collaborate no matter where they are. And with AT&T's integrated network security, Maya knows she can expand her endpoints without any increase in exposure.

The new



at&t
Your world. Delivered.

contents (cont.)



DEPARTMENTS

From the Editor | 10

What's So Funny? | If laughter reduces stress and increases productivity, why do corporate cultures tend to be so grim? *By Abbie Lundberg*

From the CEO | 14

The Coming Pandemic | No, not bird flu. Identity theft. *By Michael Friedenberg*

Trendlines | 21

Infrastructure | Land of the Wired

Databases | IT Unlocks the Origin of Darwin's Theory

Internet | Broadband for Everyone—in Singapore

Leadership | Women at the Top

Washington Watch | More Visas, Less Work

Book Review | If You Want to Play, You Have to Keep Score

Robotics | Better Robots

By the Numbers | Regulation's Silver Lining

Index | 82

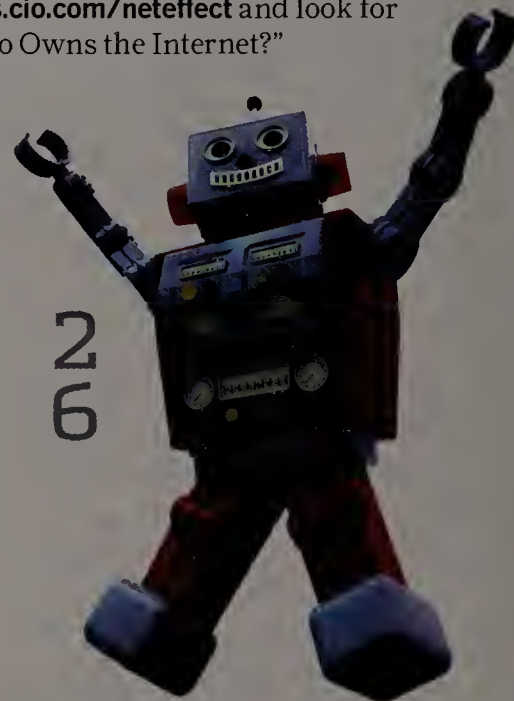
Endlines | 84

The Glue Gun and Other Sticky Stories
By Christopher Lindquist

Wh@t's Hot Online

THE NAKED INTERNET

Well, actually, the skeleton. We have a map that shows just about every router on the North American backbone (there are 134,855 of them). Learn about the net neutrality debate in Senior Writer Ben Worthen's story on Page 74, and then go online to his blog, Net Effect, to see the map. Go to blogs.cio.com/neteffect and look for "Who Owns the Internet?"



Columns

Business Process Management

MOVING THE SIDEWALKS | 31

Business process management tools can help turn tweaks into innovations on the fly. **Essential Technology** By Mark Cooper

Project Management

THE HAMMER OF CONSENSUS | 36

When a committee is charged with achieving unanimity, the force of its decisions is multiplied. **It's All About the Execution** by Michael Schrage

Career Planning

THE NEW GLASS CEILING | 40

As one veteran CIO discovered, finding the next opportunity is not so easy when you're over 50. **Peer to Peer** by Sheleen Quish

"We have met the competition, and it is us."

"An OOCL container ship is only the most visible element of an enormously complex enterprise that moves goods from, say, Shanghai to Kilkenny.

"With our IT, we do that better than our competitors. So we compete against our own benchmarks.

"HP helped us get there — to migrate from mainframe to open systems, and to adopt standards-based technology for real-time communication with partners. So OOCL can adapt to market-driven changes much faster than other carriers.

"Today, IT costs have dropped sharply, and we project double-digit growth for the next five years.

"Now we'll try to beat that."

—Ken Chih, CIO

Make change work for you. Visit www.hp.com/adapt

oocl



Solutions for the adaptive enterprise.



Your potential. Our passion.
Microsoft

A Global Hotel Company Analyzing 1.4 Million Records a Day.
Running On Microsoft SQL Server 2005.



How does Hilton forecast demand for its 370,000 rooms and its catering services? They import data from six systems into one data warehouse requiring 7 million rows, and running on SQL Server™ 2005 with 99.98% uptime.* See how at microsoft.com/bigdata

Microsoft
SQL Server™ 2005



*Results not typical and are based on use with Windows Server™ 2003 Enterprise Edition. Availability is dependent on many factors, including hardware and software technologies, mission-critical operational processes, and professional services. © 2006 Microsoft Corporation. All rights reserved. Microsoft, Windows Server, and "Your potential. Our passion." are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.



What's So Funny?

If laughter reduces stress and increases productivity, why do corporate cultures tend to be so grim?

I recently saw *Spamalot*, the Broadway extravaganza and laugh-fest written by former Monty Pythoner Eric Idle. Being a Python fan from way back, I thoroughly enjoyed the re-creations of some of my favorite moments from *Monty Python and the Holy Grail* (the knights who say "ni"; the killer rabbit; the French castle scene). As work had been somewhat stressful lately, getting out and laughing for a couple of hours was wonderfully therapeutic.

Various studies argue that a good belly laugh produces numerous health benefits. "Laughter reduces at least four neuroendocrine hormones associated with the stress response, including epinephrine, cortisol, dopac and growth hormone," writes Paul E. McGhee in an article titled "Humor and Health" (his website is <http://laughterremedy.com>). Other sources claim that laughter relieves pain, boosts the immune system, lowers blood pressure and stimulates the production of endorphins, which make you feel good.

But can laughter help a business be more productive? Many believe it can. Not only can humor reduce stress, making employees happier and healthier, it can also enhance people's ability to retain and retrieve information, says author and consultant Ron Culberson in a recent *Fast Company* article, "Laughing Your Way to Success."

My favorite Python, John Cleese, agrees. Cleese branched out into corporate training videos and motivational speaking in the '70s and '80s. (Who can forget such classics as "Meetings, Bloody Meetings" and "Body Language Howlers"?) "Humor in training increases retention and decreases anxiety," Cleese has said. "If the training point is surrounded with humor, it can be readily digested, remembered and applied."

Humor in the workplace has been shown to stimulate creative thinking and increase productivity, says Bruce Baum, professor of exceptional education at Buffalo State University, in the *Fast Company* article. "The more fun you have, the more you can get done."

But Cleese is well aware that the workplace is not the most conducive environment for humor. He once said, "I find it rather easy to portray a businessman. Being bland, rather cruel and incompetent comes naturally to me." And if you look at the portrayal of the workplace in popular culture, that's pretty much the picture you get. Have you seen *The Office*? Sure it's funny, but in a painful way.

Part of the problem is that at first blush comedy seems to be at odds with competition. Can you imagine Olympic figure skater Sasha Cohen taking time before her program to tell a joke? Well, maybe if she had, she might not have fallen. A famous Joe Montana story has the Hall of Fame quarterback pausing in the huddle to draw his teammates' attention to John Candy sitting in the stands during the 49ers' successful last-minute drive in the 1982 Super Bowl. The trick is finding the right way to incorporate humor into your work setting.

Have you found that way? If so, I'd love to hear about it.

"Humor in training increases retention and decreases anxiety. If the training point is surrounded with humor, it can be readily digested, remembered and applied."

—John Cleese, Minister of Silly Walks

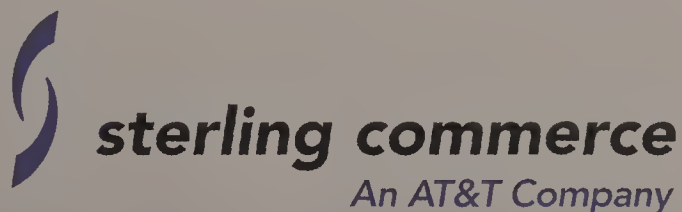
Abbie Lundberg, Editor in Chief
lundberg@cio.com

73% of the FORTUNE 100® and 76%
of the European 100 compared business
collaboration providers and came to
a single conclusion.

Obviously, great
minds think alike.

Many of the world's most successful organizations rely upon Sterling Commerce to automate their business processes, so they can exchange critical information with their trading partners, subsidiaries and customers. Reliably. Securely. And regardless of the application being used. Sterling Commerce delivers the first platform to meet all the complex challenges of real-world multi-enterprise collaboration. Find out what so many companies already know. Speak to a Sterling Commerce representative today. Or visit www.sterlingcommerce.com

BUSINESS APPLICATIONS / BUSINESS INTEGRATION / BUSINESS INTELLIGENCE / BUSINESS PROCESS MANAGEMENT / SOLUTION DELIVERY

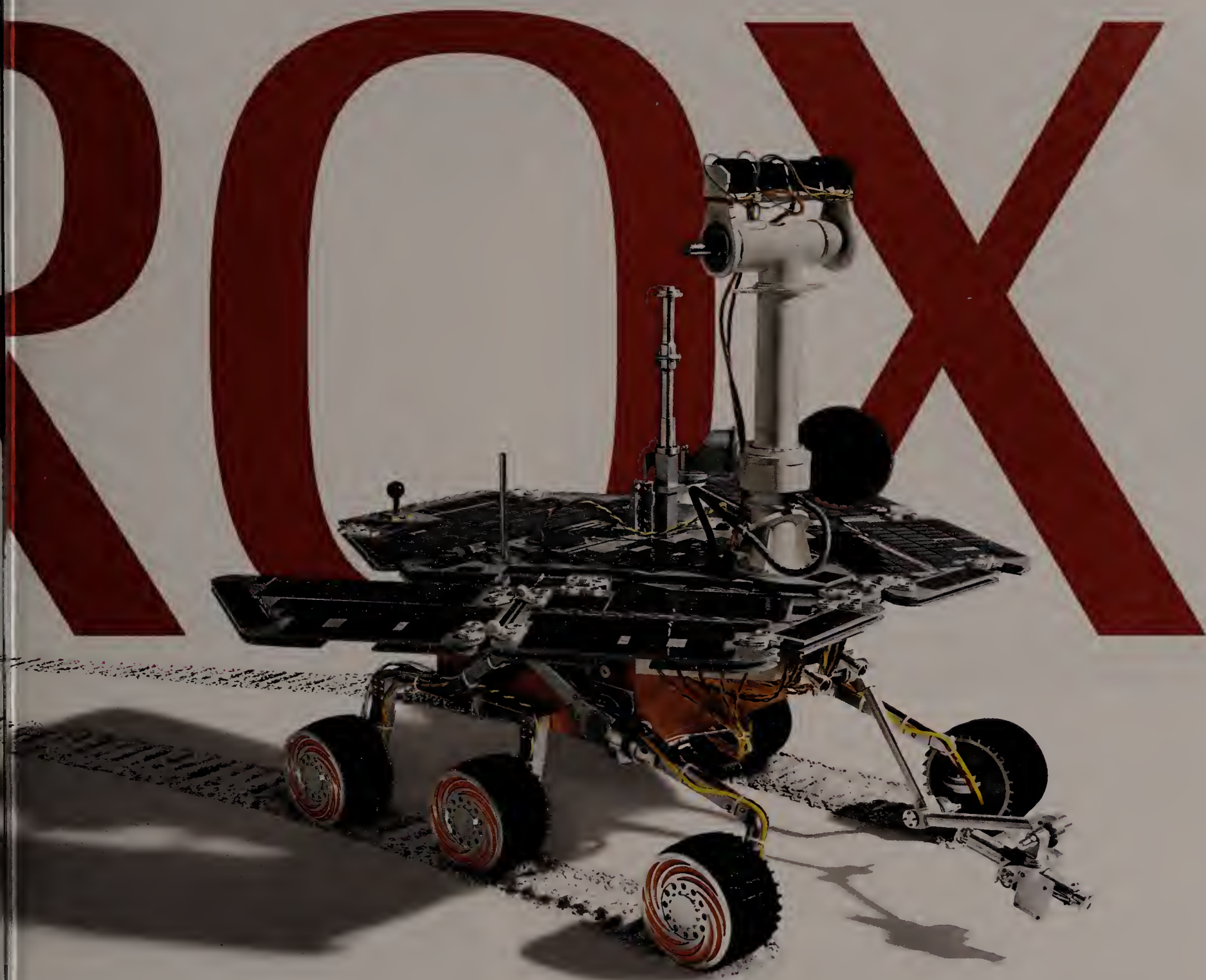


XEROX

NASA has out-of-this-world ideas. To share them
platform capabilities of Xerox DocuShare®

xerox.com/learn 1-800-ASK-XEROX ext. LEARN

© 2005 XEROX CORPORATION. All rights reserved. XEROX®, DocuShare® and There's a new way to look at it® are trademarks of XEROX CORPORATION in the United States and/or other countries.



with colleagues in our world, they use the multi-
software. There's a new way to look at it.

XEROX®

Technology

Document Management

Consulting Services

The Coming Pandemic

No, not bird flu. Identity theft.



As the world tries to ready itself for the inevitable spread of the H5N1 avian flu virus, it's unsettling to see another pandemic creeping up on us for which we seem frighteningly unprepared. I'm referring to identity theft and to the fact that companies are simply not taking sufficient care to protect their most important asset: their customers.

The numbers are already staggering, and they will only get worse. At the recent CSO Perspectives Conference, hosted by *CIO*'s sister publication, David McIntyre, CEO of TriWest, reported that 53 million identities have been stolen to date and 19,000 more are stolen every day. When it comes to cleaning up this mess, companies on average spend 1,600 work hours per incident at a cost of \$40,000 to \$92,000 per victim.

But what's even more expensive than the cleanup is the cost to customer relations. According to Edward McNicholas, a partner in the law firm Sidley Austin, if you experience a security breach, 20 percent of your affected customer base will no longer do business with you, 40 percent will consider ending the relationship, and 5 percent will be hiring lawyers!

Business continues to profit from the information it gathers about its customers, using IT to leverage that data to create more efficient sales strategies and more opportunities for doing business. But with this profit comes risk. ChoicePoint and BJ's Wholesale have become poster children for what happens if an enterprise is not sufficiently careful with the information it collects. Can you afford a \$15 million fine such as the one the Federal Trade Commission levied in January on ChoicePoint? Can you afford *any* breach of confidence with your customers?

These questions are obviously rhetorical. No company wants to place customers in harm's way or risk its relationship with them. What's not a rhetorical question is, "Are you doing all you can to make sure that this does not happen to your organization? And, if it does, do you have a plan in place to deal with it?" Unless business brings all its energy and resources to bear on this growing problem, we risk a pandemic that will rock the buyer-seller relationship to its core.

Let me know what you're doing to inoculate your enterprise.

Michael Friedenber, President and CEO
mfriedenber@cio.com



BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenber
PUBLISHER Gary J. Beach

CXO MEDIA

CIRCULATION

SVP, CIRCULATION Carol A. Spach
SUBSCRIPTION SVCS. SUPERVISOR Tina Pescara

CIO EXECUTIVE COUNCIL

GENERAL MANAGER Mark Hall
PROGRAM DIRECTOR Shaw Lively
VP, DEVELOPMENT Dexter Siglin
MANAGING DIR., CONTENT DEVELOPMENT Richard Pastore
DIR., EXTERNAL RELATIONS Karen Fogerty
DIRECTOR OF RESEARCH Michael Swenson
MARKETING COMMUNICATIONS MANAGER Jennifer Baker
MGR. OF OPERATIONS AND PROJECT MGMT. Jean Costello
DIRECTOR OF RELATIONSHIP MANAGEMENT Steve Rovniak
PROGRAM SERVICES MANAGERS Michael Fahlsing,
Ellen Friedman, Bill Golden, Carrie Mathews, Bill Roche
DEVELOPMENT MANAGERS
Ross Chapin, Patrick Clarke, Lauren DeLong,
Steve Dodman, Robert Graham, Amanda Neal

EXECUTIVE PROGRAMS

VP, EXECUTIVE PROGRAMS Ellen Daly
DIRECTOR OF MARKETING Mary Cardwell
DIR., BUSINESS DEVELOPMENT
Chris Mattoon, John Vulopas
DIR., EVENT PLANNING Amy Turell
CONFERENCE MANAGER Judith Kittredge
EVENT PLANNER Sarah Yee
DESIGNER Andrea Slobogan
CLIENT RELATIONS ASSOCIATE Lisa Byron
CLIENT SERVICES SPECIALIST Cress O'Brien

ONLINE

DIRECTOR OF ONLINE TECHNOLOGY Christopher Murray
MANAGER OF ONLINE PRODUCTION SERVICES Todd Borglund
SENIOR I.T. ARCHITECT Srinivas Dutta
AUDIENCE DEVELOPMENT MANAGER Judah Phillips
ONLINE PRODUCERS
Bill Hall, Jennifer McCarthy, Joe Nguyen
ONLINE ADVERTISING SPECIALIST Irina Gabechiia

INFORMATION SYSTEMS

IDG DIR. OF INFORMATION SERVICES Nancy Newkirk
INFRASTRUCTURE MANAGER James C. Burgoyne
LEAD DEVELOPER Sean McCracken
SENIOR USER SUPPORT SPECIALIST Christopher A. Kay
USER SERVICES SPECIALIST Gloria Lam
WEB DEVELOPER Sanghee Seo

PRODUCTION

VP, MANUFACTURING Chris Cuoco
PRODUCTION MANAGER Heidi Broadley
ASSOCIATE PRODUCTION MANAGER Lisa M. Stevenson

MARKETING

SR. DIRECTOR, MARKETING COMM. Sue Yanovitch
SR. MARKETING COMM. SPECIALIST Susan Maloney
MARKETING COMM. SPECIALIST Lynn Holmlund

RESEARCH

RESEARCH DIRECTOR Lorraine Cosgrove Ware
RESEARCH MANAGER Carolyn Johnson

ADMINISTRATION

COO Matt Smith
DIR., FINANCE Margarita Chiango
FINANCIAL ANALYST, ONLINE AND INTEGRATED PRODUCTS
Chris Bernardi
EXECUTIVE ASSISTANT TO THE PRESIDENT Diane Martin
BILLING SPECIALIST Joyce Gillis
FACILITIES SPECIALIST John Kelley
OFFICE SERVICES COORDINATOR Mary E. Wooldridge

HUMAN RESOURCES

VP, HUMAN RESOURCES Patricia Chisholm
SR. HR REPRESENTATIVE Beth S. Ramistella



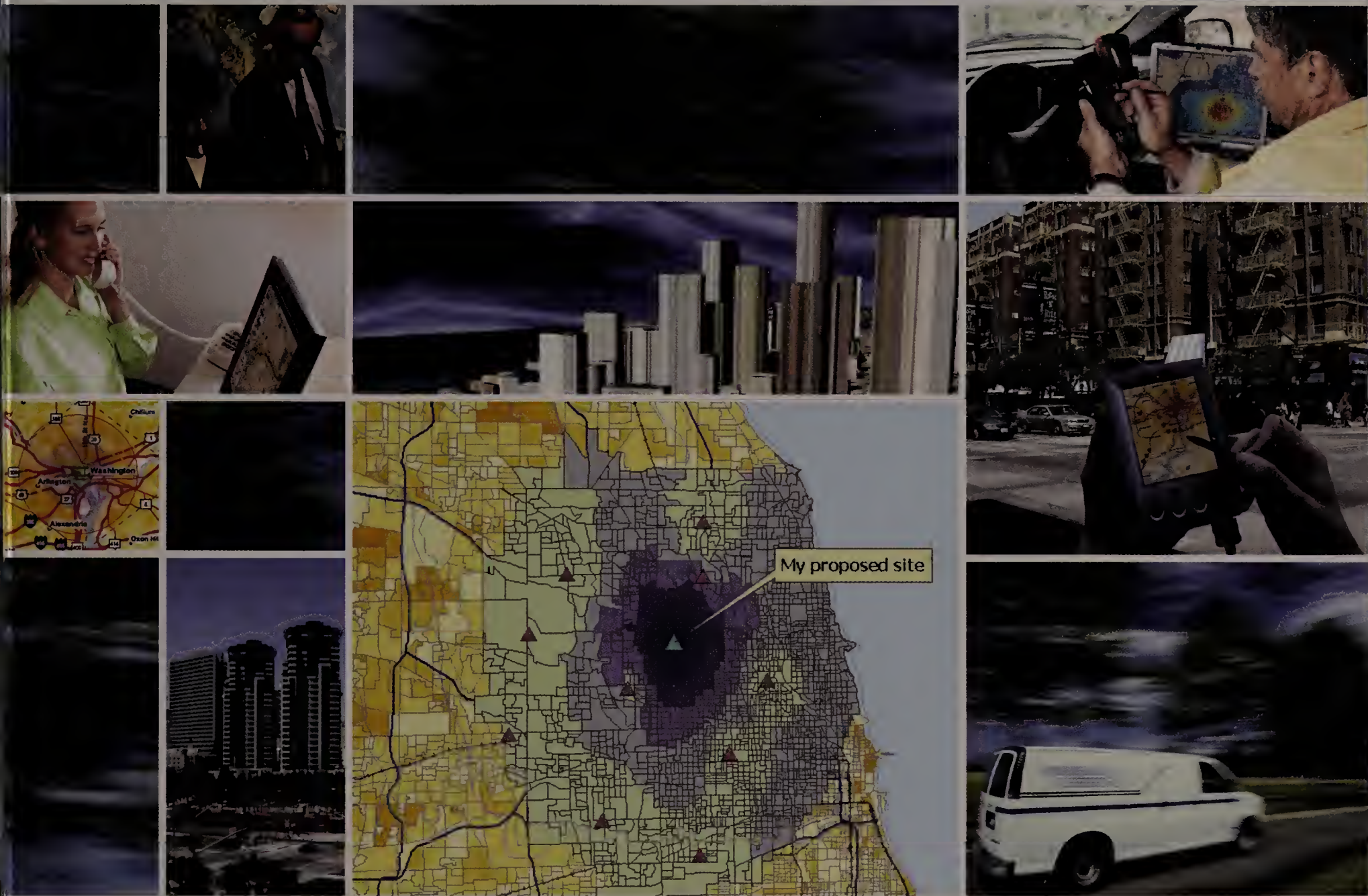
CXO MEDIA INC.

INTERNATIONAL DATA GROUP

BOARD CHAIRMAN Patrick J. McGovern
PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



Location, Location, Location...



It's fundamental to your business. Are you leveraging your location data?

Customer addresses, time zones, office facilities, service areas, political boundaries, critical shipments, utility networks, field-workers, real estate, mobile assets, and warehouses—location is mission critical in every organization.

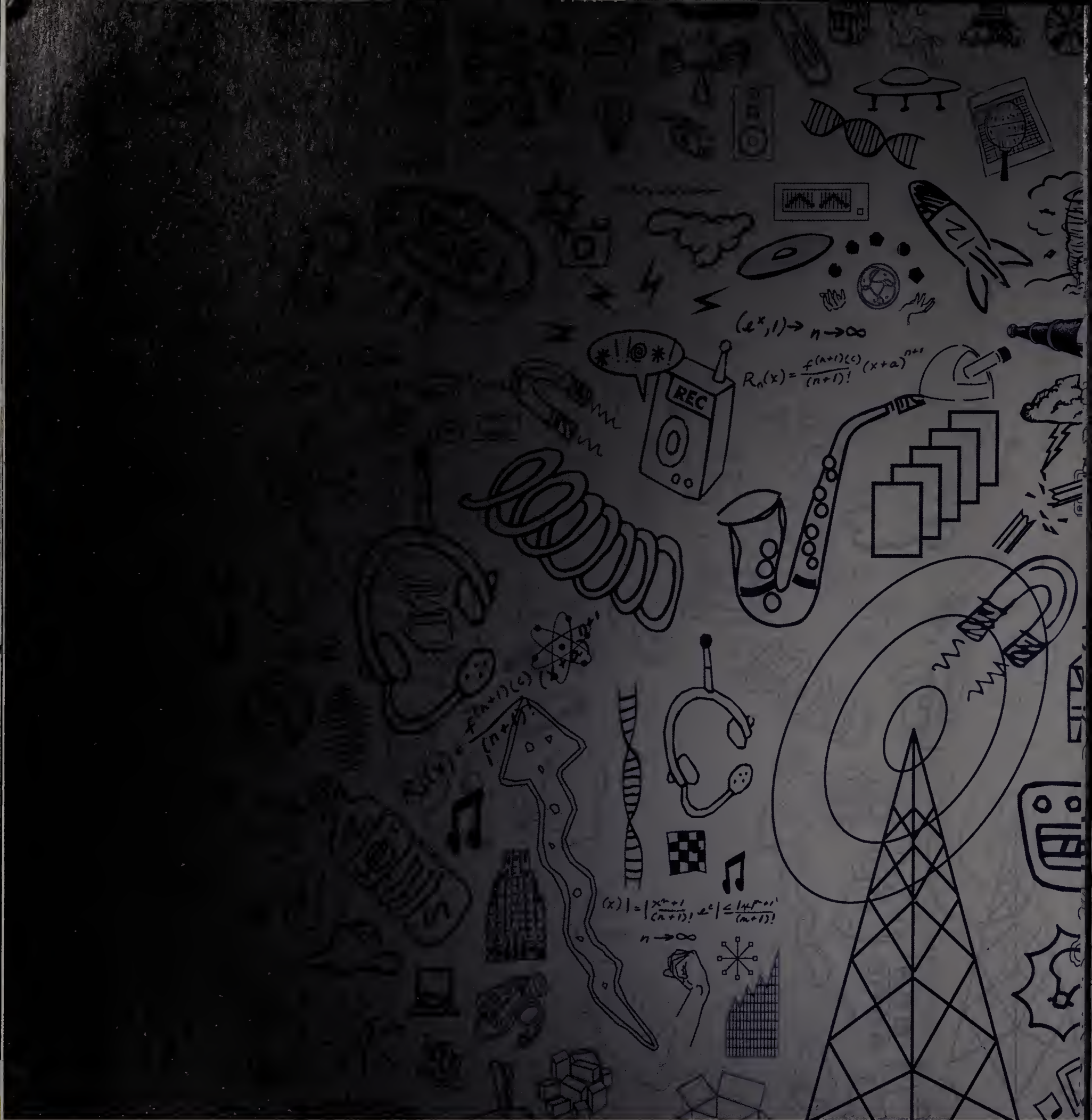
By leveraging the location information that is inherent in your information systems, you can manage your organization more efficiently and cost-effectively, helping you gain a competitive advantage.

ESRI technology is a standards-based, scalable, and interoperable platform that can exploit location data in your business processes. With ESRI geographic information system (GIS) technology, you can make location information and analysis available to the people in your organization—at all levels—who need it most.

To learn more about leveraging your location data, please visit www.esri.com/it or call 1-888-373-1192.

You have the location information; put it to work for you.





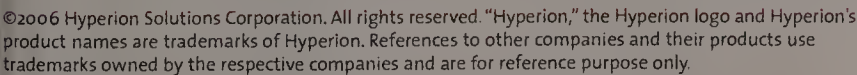
Leaders Wanted/CIO Challenge Series

Challenge #1:

Teach everyone how to
innovate with IT.

Solution: Hyperion—your management system for the global enterprise.

Technology drives innovation. That makes you *Chief Innovation Officer*. So how do you transform *innovation* from a buzzword into a sustainable part of your business? Visionary CIOs are leading the way with Hyperion performance management solutions. With Hyperion, you break down the barriers between finance, operations and planning and align them around a master data set. You give everyone the tools they need to continuously analyze and manage business performance—and invent new ways to improve it. Isn't that what real innovation is all about?





BUSINESS TECHNOLOGY LEADERSHIP

PRESIDENT AND CEO Michael Friedenberg
PUBLISHER Gary J. Beach

EDITORIAL

EDITOR IN CHIEF Abbie Lundberg
MANAGING EDITOR David Rosenbaum

EXECUTIVE EDITORS

Christopher Koch, Elana Varon

WASHINGTON BUREAU CHIEF

Allan Holmes

TECHNOLOGY EDITOR

Christopher Lindquist

SENIOR EDITORS

Stephanie Gelston, Stephanie Overby

SENIOR WRITERS

Meridith Levinson, Susannah Patton,

Thomas Wailgum, Ben Worthen

CONTRIBUTORS

Ben Ames, Mark Cooper, Nancy Gohring,
Grant Gross, Jeremy Kirk, Sumner Lemon,
Sheleen Quish, Sarah D. Scalet, Michael Schrage

EDITORIAL ADMINISTRATOR

Jill Paquette

DESIGN

EXECUTIVE DIRECTOR, ART AND DESIGN

Mary Lester

ART DIRECTOR Terri Haas

ASSOCIATE ART DIRECTORS

Matthew Goebel, Chandra Tallman

COPY TEAM

COPY CHIEF Emily S. Henderson

SENIOR COPY EDITORS

Diann Daniel, Cathy Mallen

EDITORIAL ASSISTANTS

Margaret Locher, Christopher Lynch,
Katherine Walsh

ONLINE EDITORIAL

WEB EDITORS

Sandy Kendall, Paul L. Kerstein

ONLINE NEWS WRITER Al Sacco

ONLINE COPY EDITOR David Gradijan

RESEARCH

RESEARCH DIRECTOR

Lorraine Cosgrove Ware

RESEARCH MANAGER

Carolyn Johnson



CXO MEDIA INC.

INTERNATIONAL DATA GROUP

BOARD CHAIRMAN Patrick J. McGovern

PRESIDENT, IDG COMMUNICATIONS Bob Carrigan



©CXO Media Inc.

WHAT WE COVER, WHOM TO CONTACT

CIO CAREER

- Skills
- Job Specs
- Career Path
- Professional Development
- Personal Development

Meridith Levinson, mlevinson@cio.com

Stephanie Gelston, sgelston@cio.com

LEADERSHIP & MANAGEMENT

- Governance & Alignment
- Budget Management & IT Value
- Business Process Redesign
- Management Methodologies
- Project Management

Elana Varon, evaron@cio.com

Christopher Koch, ckoch@cio.com

SOURCING AND STAFFING

- Outsourcing/Insourcing
- Staffing
- Vendor Management
- Knowledge Management

Stephanie Overby, soverby@cio.com

Stephanie Gelston, sgelston@cio.com

RISK MANAGEMENT

- Security
- Privacy
- Business Continuity
- Compliance

Ben Worthen, bworthen@cio.com

Allan Holmes, aholmes@cio.com

Susannah Patton, spatton@cio.com

ENTERPRISE INFRASTRUCTURE

- Enterprise Architecture, SOA
- Middleware
- Enterprise Resource Management (ERP)
- Supply Chain Management (SCM)
- B2B Electronic Commerce

Christopher Koch, ckoch@cio.com

Ben Worthen, bworthen@cio.com

CUSTOMERS

- Customer Resource Management (CRM)
- B2C Electronic Commerce
- Business Intelligence

Thomas Wailgum, twailgum@cio.com

Susannah Patton, spatton@cio.com

TECHNOLOGY

- Emerging Technology
- Networking & Communications
- Data Center
- Storage
- Hardware

Christopher Lindquist, clindquist@cio.com

Thomas Wailgum, twailgum@cio.com

GOVERNMENT

Allan Holmes, aholmes@cio.com

COLUMN & DEPARTMENT CONTACTS

Applied Insight

Christopher Koch, ckoch@cio.com

Book Reviews

Elana Varon, evaron@cio.com

By the Numbers

Elana Varon, evaron@cio.com

Endlines

David Rosenbaum, drosenbaum@cio.com

Essential Technology

Christopher Lindquist, clindquist@cio.com

Forum

Abbie Lundberg, lundberg@cio.com

InBox

Cathy Mallen, cmallen@cio.com

Keynote

Abbie Lundberg, lundberg@cio.com

Martha Heller

Stephanie Gelston, sgelston@cio.com

Michael Schrage

Abbie Lundberg, lundberg@cio.com

On the Move

Meridith Levinson, mlevinson@cio.com

Peer to Peer

David Rosenbaum, drosenbaum@cio.com

Susan Cramm

David Rosenbaum, drosenbaum@cio.com

Total Leadership

Elana Varon, evaron@cio.com

Trendlines

Elana Varon, evaron@cio.com

Washington Watch

Allan Holmes, aholmes@cio.com

Ben Worthen, bworthen@cio.com

E-MAIL letters@cio.com **PHONE** 508 872-0080 **FAX** 508 879-7784 **ADDRESS** CIO Magazine, CXO Media Inc.,
492 Old Connecticut Path, P.O. Box 9208, Framingham, MA 01701-9208 **WEBSITE** www.cio.com

SUBSCRIBER SERVICES 866 354-1125 • Fax 847 564-9453 • E-mail cio@omedia.com

REPRINT SERVICES Jennifer Eclipse • PARS International • 212 221-9595 ext. 237 • E-mail jeclipse@parsintl.com

RIGHTS AND PERMISSION Yadira Pizarro • 212 221-9595 ext. 231 • E-mail yedira@parsintl.com

*With network security, if you're not ahead of the threat...
you're only reacting to it.*



Let Internet Security Systems stop network threats before they impact your business.

How do you ensure compliance and manage costs when your security is less than certain? Even "zero-day" solutions aren't fast enough to protect against losses once an Internet attack hits. The alternative is preemptive security from Internet Security Systems. Because our enterprise solutions are based on the world's most advanced vulnerability research, only ISS can offer preemptive security and stop threats *before* they impact your business. So why rely on "reaction" when security can be a sure thing?

Need proof? Get a free whitepaper, *Preemptive Security: Changing the Rules*, at www.iss.net/proof or call 800-776-2362.

 **INTERNET | SECURITY | SYSTEMS®**
Ahead of the threat.™

NETWORK & HOST INTRUSION PREVENTION

MANAGED SECURITY SERVICES

VULNERABILITY MANAGEMENT

CHRIS MCCANN
PRESIDENT, 1-800-FLOWERS.COM

SAS® gives 1-800-FLOWERS.COM

THE POWER TO KNOW®

how to cultivate brand loyalty through quality customer relationships.

A pioneer on the Internet, 1-800-FLOWERS.COM is now a leading multichannel retailer with more than 15 million customers. Brand loyalty – rooted in personal, one-to-one customer relationships – has helped the company flourish. And that's where SAS comes in. With SAS™ business intelligence and analytic software, 1-800-FLOWERS.COM can quickly understand customer behaviors, target products and offers, and predict results that strengthen its overall CRM strategy. The result? A 15 percent increase in customer retention. To learn more about 1-800-FLOWERS.COM and other SAS success stories that go *Beyond BI™*, visit our Web site.

www.sas.com/flourish



trendlines

EDITED BY ELANA VARON

NEW * HOT * UNEXPECTED

Land of the Wired

The United States tops the world in deployment and use of IT

INFRASTRUCTURE The United States has regained its position as the most wired nation in the world, according to a report by the World Economic Forum (WEF).

The WEF's Global biannual "Information Technology" report measures the information and communication technology readiness of 115 countries. Countries are ranked on more than 5 dozen factors, including their communications infrastructure, level of government regulations, quality of schools, availability of venture capital, and the level of business and government usage of the latest technologies. These factors compose what the WEF calls a networked readiness index.

Irene Mia, senior economist at the WEF, says the index, by

identifying a country's strengths and weaknesses in IT, helps governments prioritize their development efforts. "The report provides the perfect platform for public-private dialogue and [emphasizes] the importance of ICT [information and communication technology] for [a country's] development."

The United States rose from fourth place in the WEF's last ranking, published in 2004. More significant, however, is the fact that the United States has held the top position for three out of the past five years, according to Augusto Lopez-Claros, chief economist at the WEF and

Continued on Page 22



IT Unlocks the Origin of Darwin's Theory

DATABASES British naturalist Charles Darwin is credited with the theory of evolution, but a crucial part of his theory came from his mentor, John Stevens Henslow, a lesser-known Cambridge University professor.

Henslow may have been forever relegated to obscurity were it not for database analytics. For more than two years, a team of researchers based at Cambridge worked to uncover a secret hidden in Henslow's 160-year-old her-

barium (his collection of plants).

Henslow's herbarium consists of paper sheets with more than 10,000 dried plant samples on them that he and others collected. Henslow documented the samples' origins and species, among other data.

According to Mark Whitehorn, a database expert who worked on the project, once this information was transferred into a database, researchers were able to draw connections from the plant sam-

ples, such as when two collectors may have been traveling together.

They reached a striking conclusion: The concept of variation—meaning differences within a species necessary for its survival as a whole—was first observed by Henslow, Whitehorn says. "He trained Darwin to observe variations between the species."

—Jeremy Kirk



HENSLOW



Broadband for Everyone—in Singapore

INTERNET Singapore is planning a national broadband network that would provide ultra-fast Internet access at speeds up to 1Gbps for every home and business.

"Today, a high-speed broadband network is an essential infrastructure for economic development, investment, talent attraction, education and a host of other activities," says Lee Boon Yang, Singapore's minister for information, communications and the arts.

In a speech delivered in March, Lee said the country's current broadband infrastructure will not be able to cope with surging demand for data access in the years ahead, making a network upgrade necessary.

The planned Next-Generation National Broadband Network, which was first outlined in Prime Minister Lee Hsien Loong's budget speech in February, will connect all homes, schools and businesses in Singapore. A wireless broadband network will also blanket the city-state.

Government officials view broadband Internet access as a priority for Singapore's economic development. The country was among the first in Asia to embrace the Internet during the 1990s, but since then other countries in the region, such as South Korea and Japan, have built faster, more advanced networks.

The upgraded broadband network will allow Singaporeans to make video calls to stay in touch with relatives and friends overseas, according to Lee, the information minister. In addition, the faster connections will make new consumer services possible, such as high-definition Internet protocol TV. "It will sharpen our business efficiency and spark off many new opportunities for entrepreneurs," he says.

The government plans to work with private companies to build the network, Lee says, and is prepared to provide funding to kick-start the project.

As a first step, Singapore's Infocomm Development Authority (IDA), a government agency, has invited service providers to submit proposals for offering wireless broadband. The operating model specified by IDA requires service providers to offer a basic service for the lowest possible cost, which may include one year of free access. Service providers also must offer a premium service, for which users would pay more.

—Sumner Lemon

Land of the Wired

Continued from Page 21

coeditor of the report.

The WEF also notes that the United States continues to be a leader in technological innovation, which the report attributes to the quality of its universities and cooperation between its research and business communities.

One reason the United States tops the list so often is that U.S. companies are more decentralized and better managed, according to a study by John Van Reenen and Raffaella Sadun of the London School of Economics that is part of the WEF report. As a result, U.S. companies obtain higher returns from their IT investments. In industries that rely heavily on IT, U.S. companies had greater productivity gains than their European counterparts, according to the study.

Singapore, which held the top spot in 2004, dropped to second place this year. The city-state has ranked among the

top three most-wired countries in each of the past four years, the report says, because of its economy, its commitment to higher education, and government support for the latest technologies. The government of Singapore recently launched an effort to upgrade its broadband infrastructure and deploy a national wireless network (see "Broadband for Everyone—in Singapore" this page).

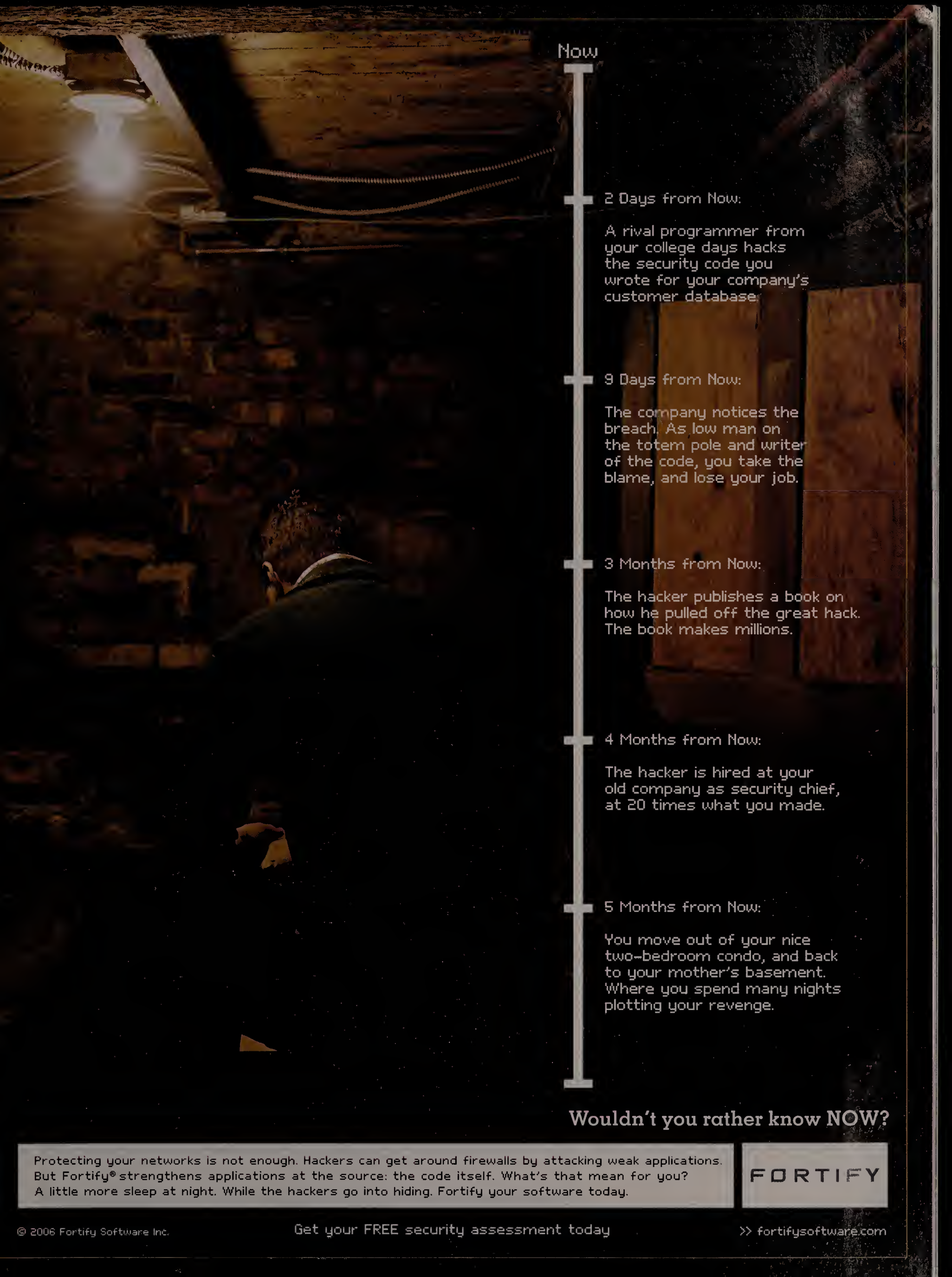
Denmark, Iceland, Finland and Sweden have also established themselves as technology leaders, occupying places in the top 10 for the past five years. This year, the countries took third, fourth, fifth and eighth places respectively. These Nordic countries share characteristics similar to those of other IT leaders, the report says. Top-notch universities and flexibility of government regulations in these countries have created an environment that encourages innovation, the deployment of emerging technologies and new business ventures.

—Katherine Walsh and
Nancy Gohring

Networked Readiness Index 2005

Top 20 ranked countries

- 1 United States
- 2 Singapore
- 3 Denmark
- 4 Iceland
- 5 Finland
- 6 Canada
- 7 Taiwan
- 8 Sweden
- 9 Switzerland
- 10 United Kingdom
- 11 Hong Kong
- 12 Netherlands
- 13 Norway
- 14 South Korea
- 15 Australia
- 16 Japan
- 17 Germany
- 18 Austria
- 19 Israel
- 20 Ireland



Now

2 Days from Now:

A rival programmer from your college days hacks the security code you wrote for your company's customer database.

9 Days from Now:

The company notices the breach. As low man on the totem pole and writer of the code, you take the blame, and lose your job.

3 Months from Now:

The hacker publishes a book on how he pulled off the great hack. The book makes millions.

4 Months from Now:

The hacker is hired at your old company as security chief, at 20 times what you made.

5 Months from Now:

You move out of your nice two-bedroom condo, and back to your mother's basement. Where you spend many nights plotting your revenge.

Wouldn't you rather know NOW?

Protecting your networks is not enough. Hackers can get around firewalls by attacking weak applications. But Fortify® strengthens applications at the source: the code itself. What's that mean for you? A little more sleep at night. While the hackers go into hiding. Fortify your software today.

FORTIFY



Women at the Top

LEADERSHIP It's harder for women to become CIOs than it is for them to achieve any other executive role, according to researchers at the University of California, Davis. A recent study by the university's Graduate School of Management found only four female CIOs at the 200 largest public companies headquartered in California.

Although there are few women in C-level jobs at any of the 200 companies, 32 percent have female executive officers and 66 percent have women as directors.

The women who hold the top IT jobs at the companies surveyed are Mahvash Yazdi, CIO of Edison International; Jennifer Bolt, senior VP and CIO of Franklin Resources; Maria Fitzpatrick, VP and CIO of Mercury General; and Dawn Martin, executive VP and CIO of Westcorp and WFS Financial.

The percentage of women who are CIOs is similar elsewhere in the United States, says Kim Elsbach, professor of management and coauthor of the study. For example, she says a study by InterOrganization Network counted only two women out of 100 CIOs in Massachusetts.

June Drewry, CIO with the insurance company Chubb, says there's more to the problem than discrimination—including career decisions women make and how well-known they are to upper management. One part of the solution, she says, is for companies to take steps to cultivate more women as leaders through leadership development and mentoring programs.

—Maggie Locher

washingtonwatch

EDITED BY ALLAN HOLMES

More Visas, Less Work

Plan to increase cap on H-1B visas part of immigration debate

A Senate committee voted in March to increase the annual cap for H-1B visas from 65,000 to 115,000, amid renewed debate over whether technology companies are using the program to replace American workers with cheaper foreign labor.

The cap increase, which would allow technology companies to hire more foreign workers for hard-to-fill technology jobs such as programming, is part of the Comprehensive Immigration Reform Act of 2006, which Congress began debating in March. The larger measure is controversial because of disagreements about how to manage illegal immigration.

The H-1B visa provisions also would provide for future increases once the proposed 115,000 cap is reached and would eliminate any visa cap for advanced-degree holders. About 20,000 visas not included in the 65,000 cap were issued last year to advanced-degree holders.

Technology companies such as Microsoft have called on Congress to increase the cap, saying they often can't find qualified U.S. workers to fill high-level tech jobs and need the foreign workers in order to remain competitive. The 65,000 cap was reached last year in the first month the visas were offered. "U.S. businesses should have access to the best and brightest workers in the world," said Rep. Bob Goodlatte (R-Va.) at a hearing of the House Subcommittee

on Immigration, Border Security and Claims.

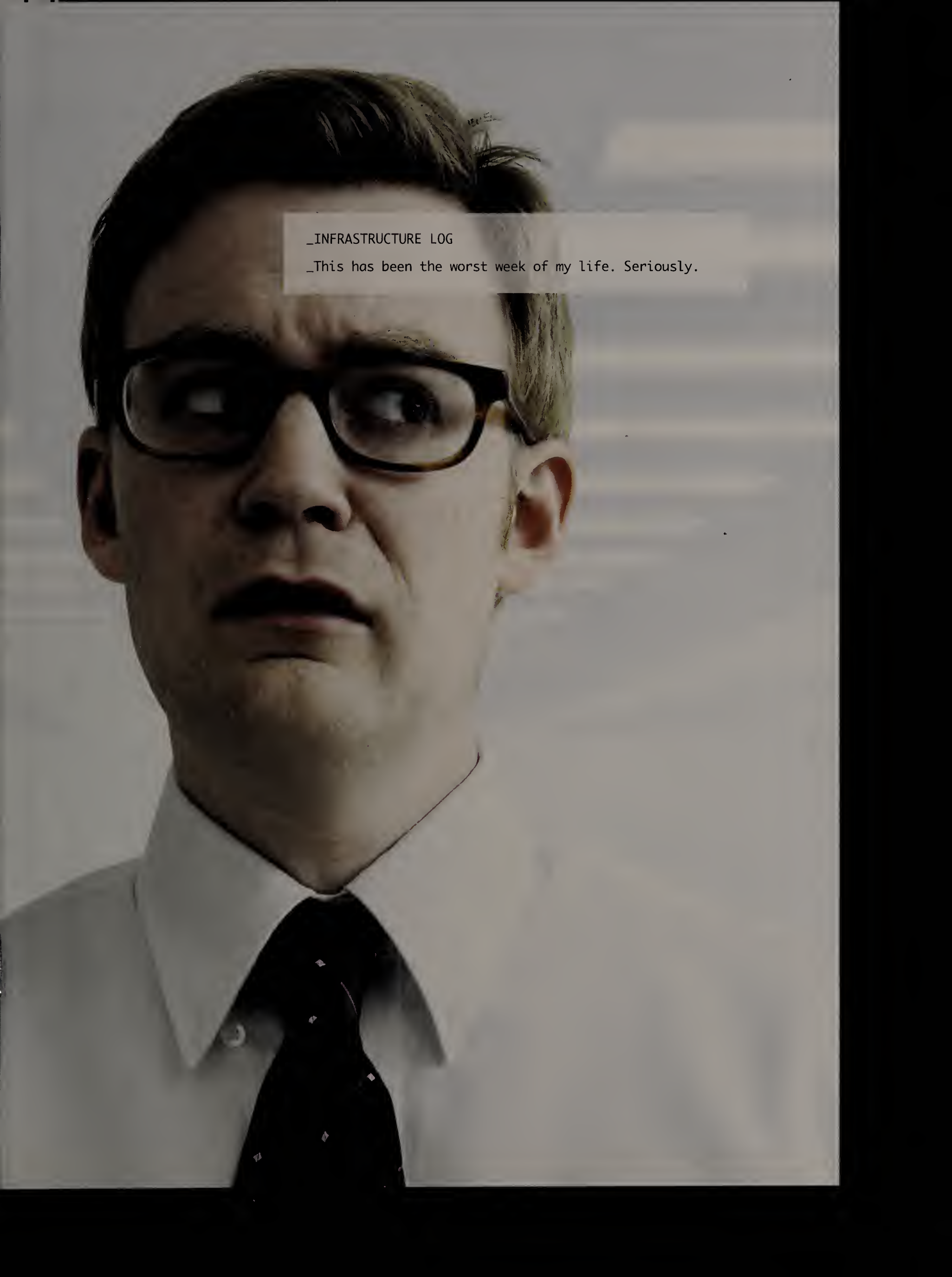
According to a recent survey by the Society for Information Management, technology executives are concerned about the supply of workers who can fill entry-level programmer and systems analyst positions, as well as midlevel jobs such as architects and project managers.

But David Huber, a network administrator with 15 years of experience, told the subcommittee that the H-1B program was the reason a utility company laid him off in May 2003 in favor of cheaper foreign workers.

The H-1B program requires companies to pay the prevailing wage to IT workers, but John Miano, a computer programmer for 18 years, told the subcommittee that according to his research, companies paid foreign programmers \$13,000 less than the median wage in the areas in which the companies were located. A recent study by the Center for Immigration Studies reached a similar conclusion. (See "The H-1B Scam," www.cio.com/021506.)

Stuart Anderson, executive director of the National Foundation for American Policy, a think tank focusing on trade and immigration issues, disputed Miano's research, saying the wages of entry-level H-1B hires can't be accurately compared with those of experienced IT workers. Still, Rep. Steve King (R-Iowa) questioned the program's effects. "We should not have a visa program that allows an employer to lay off U.S. workers in favor of cheaper foreign labor," King said.

—Grant Gross



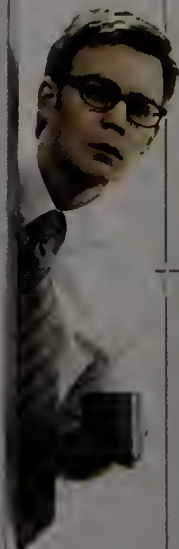
_INFRASTRUCTURE LOG

_This has been the worst week of my life. Seriously.

_MONDAY, 9:59 a.m.: Things are out of control. Our system's just not secure, flexible or reliable enough.

_3:19 p.m.: Gil bought some "infrastructure bloodhounds" online. He says they can sniff out any problem.

_5:01: Bloodhounds aren't as good at sniffing out network problems as they are at chewing Ethernet cables.



IBM®







IBM®

_TUESDAY, 8:13 a.m.: Whoa! Came in today and found a black hole. Information goes in but doesn't come out. This is bad.

_4:46 p.m.: The black hole just sucked in three interns. HR is not pleased.

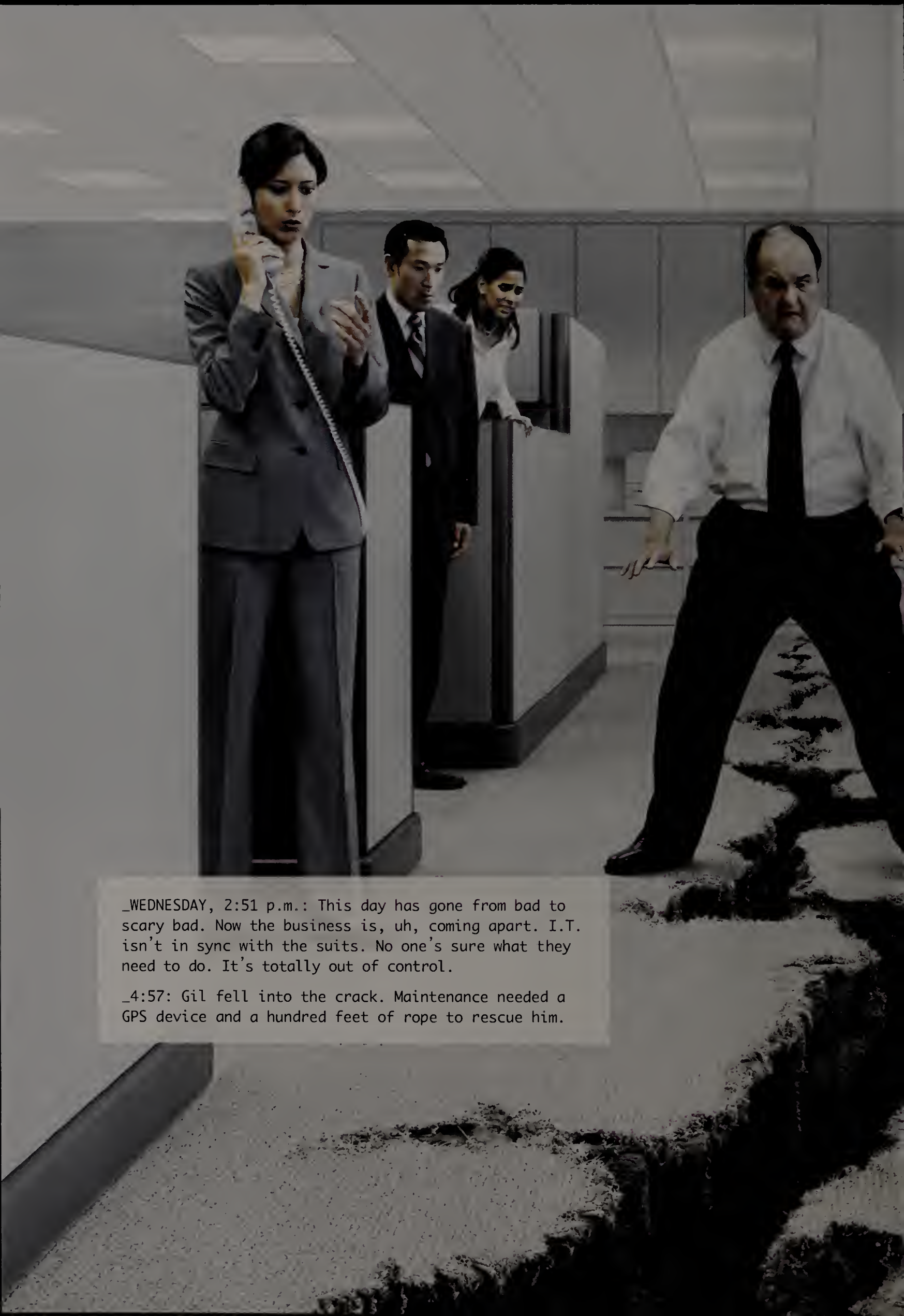
_WEDNESDAY, 9:45 a.m.: Arghh! We're so slow. It takes people forever to access...everything. No one can collaborate, no one can make smart decisions quickly enough. There's got to be a better way.

_12:22 p.m.: Gil says he's found one: aerodynamic bodysuits. He says everyone will be able to work faster and collaborate better now.



IBM®





_WEDNESDAY, 2:51 p.m.: This day has gone from bad to scary bad. Now the business is, uh, coming apart. I.T. isn't in sync with the suits. No one's sure what they need to do. It's totally out of control.

_4:57: Gil fell into the crack. Maintenance needed a GPS device and a hundred feet of rope to rescue him.

IBM®



_THURSDAY, 11:02 a.m.: I give up. Our infrastructure is so inflexible. Our apps and processes don't work together. We can't respond quickly to change. It's out of control.

_11:42: Gil had an epiphany. Duct tape. A few dozen rolls later and he's integrated everything, and everyone, by hand.

_11:45: Duct tape can fix many things. Basketballs. Sofas. Doorknobs. But not widespread app and process inflexibility.



IBM®



_FRIDAY, 9:12 a.m.: I am Ned. I have taken back control with IBM middleware.



Control infrastructure chaos with IBM Tivoli Express middleware. Backed by the unparalleled expertise of IBM's Business Partners, Tivoli Express is a customizable and innovative series of I.T. management solutions designed and priced for mid-sized businesses. It's secure, boosts uptime, and protects your data with automated backups.



Control untamed information with IBM Information Management middleware. Built on open standards, it's scalable, modular and seamlessly unites all your critical information, whatever the source. More than that, it gives your information real business value, allowing you to use it in innovative ways to help spur growth.



Control slumping productivity with IBM WebSphere Portal, part of the Lotus collaboration family. It's a customizable interface that integrates the apps, processes and info your people need to collaborate and be productive. It works throughout your enterprise and with customers and suppliers. It's also a fast start to a service oriented architecture.



Control out-of-sync software development with IBM Rational. It can help manage all your offices' development teams, ensure your software's in compliance, and implement a service oriented architecture. With Rational, everyone knows their job and works together. And your development process is governed and aligned with your business goals.



Control business paralysis with IBM WebSphere middleware. It can help make your business more flexible by seamlessly integrating the apps you already have — even those from SAP and Oracle. Now you can change processes in a snap. And with IBM's industry-specific expertise, you can start enabling a service oriented architecture.

TAKE BACK CONTROL WITH THE ENTIRE PORTFOLIO OF IBM MIDDLEWARE

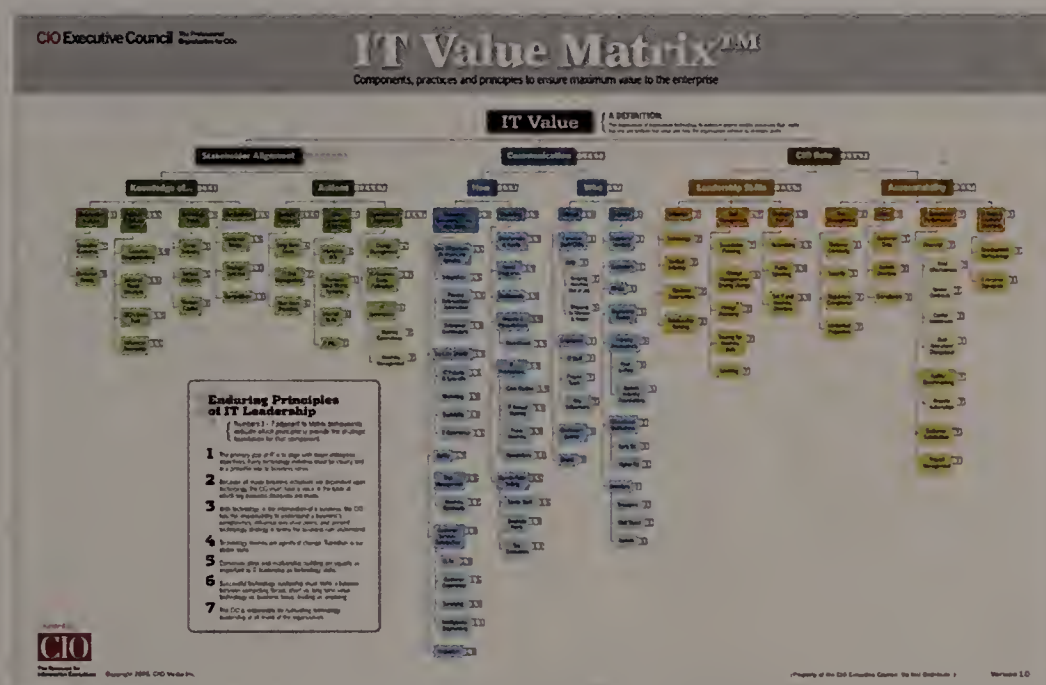
WebSphere. Information Management Lotus. Tivoli. Rational.

IBM.COM/TAKEBACKCONTROL/MIDDLEWARE

How do you Maximize the Value of IT to the Business?

IT is still one of the most misunderstood functions in business. The CIO Executive Council, a professional community developed by CIOs, has focused its members' collective effort on this challenge. Their initiative has resulted in groundbreaking tools—the IT Value Matrix and Knowledge Center™—to help leverage the value of IT throughout the organization.

The IT Value Matrix illustrates the principles and practices essential to creating, identifying and communicating IT's value to the enterprise. Its online Knowledge Center provides best practices contributed by Council members, supplemented by case studies and how-to articles from *CIO* magazine that are grouped in categories that correspond to all the components of the Matrix.



Visit www.cioexecutivecouncil.com/it_value to get your own copy of the Matrix and to watch the IT Value webcast, presented by Agrilliance CIO and Council member Steven John.

CIO Executive Council
The Professional Organization for CIOs

The CIO Executive Council was created by readers of *CIO* magazine and leaders within the community of CIOs to leverage the individual and collective strengths of its members both to serve as unbiased and trusted advisors to each other, and to advance the CIO role and profession. In just two years, more than 300 CIOs worldwide from various sectors and industries have identified with the Council's vision and committed to assist each other, cultivate their own careers and those of their team, and advance the role of the CIO. **To inquire about membership, visit www.cioexecutivecouncil.com.**

Founded by



**Business
Technology
Leadership**

**Alignment**

By Robert S. Kaplan and David P. Norton
Harvard Business School Press, 2006,
\$35

If You Want to Play, You Have to Keep Score

Balanced Scorecard authors target corporate alignment

BOOK REVIEW Robert S. Kaplan and David P. Norton developed the Balanced Scorecard as a method for executing strategy and measuring value. By identifying business goals, the actions required to achieve them and metrics for determining whether they are met, companies can align their financial management, customer activities, business processes and organizational development.

In *Alignment*, their fourth book, the authors contend that the Balanced Scorecard approach should be used to align large, diverse corporations. Plenty of companies have done this, judging from the many examples (including Ingersoll-

Rand and Hilton Hotels) that Kaplan and Norton use to illustrate their argument. Less well-tested at this point is the use of the methodology to foster better collaboration between companies and external stakeholders, such as boards of directors, investors and trading partners.

For CIOs who have used the Balanced Scorecard to manage IT value at the business-unit level, the book provides fresh thinking about how IT contributes to the overall enterprise. In short, say the authors, IT must innovate, by providing products and services that help business units differentiate themselves to customers. But for such value-added contributions, it could be more cost-effective to

outsource IT, Kaplan and Norton suggest. At the heart of the book is a simple idea: that alignment is created when different units within a company have shared objectives and agreed-upon ways to measure progress toward those objectives—the elements that make up the Scorecard. Balanced Scorecard devotees will be familiar with the complexities of developing Scorecards and “cascading” them throughout an organization. A chapter on this subject offers useful examples of companies that worked through this process based on their corporate structures, cultures and the prior experience of business units with their own Scorecards. —Elana Varon

ROBOTICS Commercial computer hardware is the key to building a reliable robot, from fast processors to cheap flash memory and high-capacity hard drives, according to robotics experts.

Products such as the Cell processor, developed for Sony's Playstation 3 video game console, will provide the processing power needed to bring robots to a mass market,

said Colin Angle, CEO of iRobot, during an April conference at Boston University. (iRobot makes Roomba, a robot vacuum cleaner, and PackBot, a military robot that disables booby traps and land mines.)

Another crucial ingredient for robotics design is wireless technology such as WiMax, important for robots to be able to exchange video and other data with their owners. “The core

of a robot could ultimately be a cell phone,” Angle said. Mobile phones combine many factors of robotic design, including geolocation and broadband networking.

Robots serve niche markets, with annual sales of about \$5.5 billion for industrial robots (the type that automotive companies use to weld and paint cars) and about \$1 billion for robots used in education, entertainment and cleaning homes. The robotics industry could grow by finding applications in new sectors, said Dan Kara, president and cofounder of Robotics Trends, a research company.

For example, at least five companies have built robots to mow the grass outside their owners' homes. Once these companies develop better battery life and safety procedures, they could capture a portion of the \$23 billion lawn-care market.

—Ben Ames

Better Robots



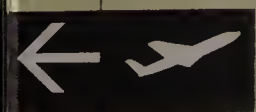
Who helps Business travel lighter with new communications solutions?

We do. You know what it's like. You're on a business trip and it seems like you're hauling around half your office. Your cell phone, your PDA, plus a suitcase full of documents. And then there's your laptop, which can't seem to connect to the network from your hotel. Siemens HiPath® solutions enable you to carry just one device—and you decide which one. So you can stop overpacking and focus on your business. HiPath. Total Business Communications.

Interested? Contact us at www.usa.siemens.com/openscape

SIEMENS

Global network of innovation



by the numbers

BY DANIEL

Regulation's Silver Lining

Sarbanes-Oxley helps improve business processes

Companies that have deployed new systems to comply with government regulations such as the Sarbanes-Oxley Act are finding these investments can do double duty by helping them to improve business processes, according to a survey of 332 companies by AMR Research. Nearly 75 percent of respondents plan to use their compliance investments to support other activities, such as streamlining business processes.

John Hagerty, vice president of research with AMR, says regulatory mandates have put a new spotlight on IT as a means to mitigate business risk. Prior to these mandates, risk management didn't get executive attention. CEOs and boards were reluctant to invest in technology to combat risk, he says. But Sarbanes-Oxley especially has made them more attuned to the technology underpinnings that compliance requires. "So you see the board open its wallet to fund some of these programs," says Hagerty.

One area where compliance mandates have prompted support is for security and identity management. Sarbanes-Oxley, for example, requires appropriate access controls to corporate systems so that an employee cannot change data unless he is authorized to do so. And so, CIOs have permission to deploy access management systems and procedures that they may have been unable to justify previously.

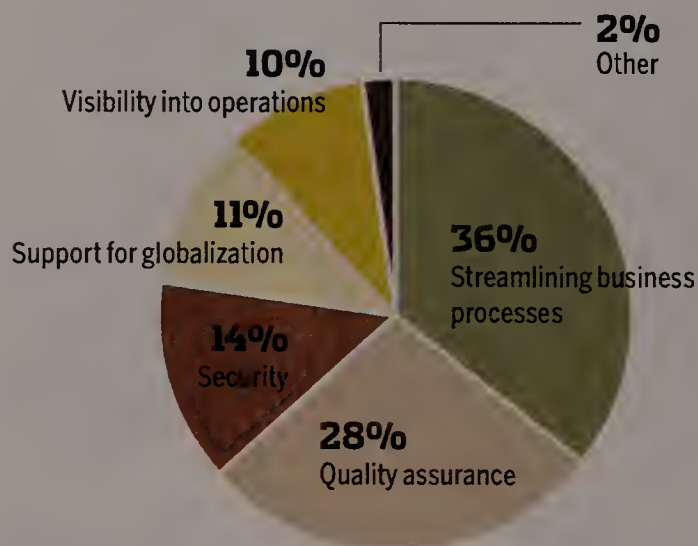
Meanwhile, Hagerty adds, the emphasis of Sarbanes-Oxley on process controls fosters greater awareness of quality assurance. The required reviews prompt companies to examine processes that are not working well or controls that are failing.

Sarbanes-Oxley has also provided support for business process management (BPM). Sarbanes-Oxley compliance depends on standardizing processes so that points of failure are minimized. BPM technology supports this standardization across a company.

Double-Duty IT

Technology for regulatory compliance supports multiple business uses

Companies repurpose compliance investments for:



Adds up to 101% due to rounding.
SOURCE: AMR Research

67%

of companies have automated their compliance processes using IT.

33%

think they don't need new IT for compliance.

Best Practices:



Compliance comes

first. Focus on what is absolutely required to satisfy the regulatory mandate. Determine what types of training, new business processes and software you will need to meet the requirements.



Identify double-duty investments.

CIOs have a global view of the company that other business leaders do not, says Hagerty. Use that knowledge to target compliance investments toward processes that need improvement. Because other business leaders will likely view compliance spending as an expense, explaining the business benefits can help make the case for investment in new technology.



Watch for overlap.

Many regulations have common business requirements, such as managing documents and records, standardizing business processes, creating reports, managing risks, and implementing security and audit controls. You may be able to use the same applications to comply with multiple regulations.



With Sybase® software, Nielsen Media Research enables customers to get real-time access to audience viewing habits through:

- ☒ 800% faster data loads
- ☒ a secure, Web-based interface
- ☒ 70% data compression ratio

When viewing trends change in the ultra-competitive broadcast industry, Nielsen Media Research and their customers know it instantly. Because they have an information edge that comes from using Sybase® IQ – a powerful data analytics server that enables their clients to analyze more data in more ways. Up to 100x faster. And Sybase IQ helps Nielsen provide better service at a lower cost. It's an edge that only we can deliver. And it's why more global companies are tuning-in to Sybase every day. www.sybase.com/infoedge101



WHEN SERVING YOUR CUSTOMERS, WHATEVER CHOICE YOU MAKE, YOU'RE TOAST.

You know that the only way to succeed is by serving your customers better. But what organization can afford to throw endless dollars at improving the customer experience? With RightNow, you don't have to make a deal with the devil.

RightNow provides a breakthrough solution that lets you enhance your customer experience while reducing costs. By delivering knowledge at every customer touchpoint, RightNow helps you grow your business, one customer

experience at a time. We've enabled more than a billion successful customer interactions for our clients in every major industry. Chances are, we can help you, too.

Find out why RightNow leads in client satisfaction. Download your free executive summary of CRMGuru's Solutions Guide at www.rightnow.com/toast or call us toll-free at 1.877.363.5678.

**RIGHT
NOW**
TECHNOLOGIES

ESSENTIAL technology

FROM INCEPTION TO IMPLEMENTATION—I.T. THAT MATTERS



Business
process
management
can help turn
tweaks into
innovations
on the fly

Moving the Sidewalks

BY MARK COOPER

INNOVATION | Down in the dusty, dry streets of Laredo, Texas, a truckload of furniture arrives at a Lacks Valley Store. Unnoticed by the dock workers as they scan each product are the myriad exceptions typical in a large-ticket retail business: missing items, special customer orders and items that were never ordered but that showed up anyway. However, behind the scenes, a business process management (BPM) application is monitoring the warehouse and receiving systems, identifying each exception as it occurs.

The BPM application then goes beyond monitoring and actually prioritizes the exceptions and launches tasks for various employees (for example, walking an employee through the steps to review and address an expected order that did not arrive). The exceptions persist as tasks, or “in flight” processes, in the system and are monitored until they are resolved. The business analysts who actually deal with the problems are able to tweak the resolution processes in real-time as they learn more efficient ways to improve operations.

In *Extreme Competition: Innovation and the Great 21st Century Business Reformation*, author Peter Fingar describes the rise of intense competitors from around the globe who “innovate by how they operate” and who are attacking markets both large and small—including small Texas border towns. To respond to these new competitors, companies like Lacks Valley

Stores must transform and evolve their operations faster than ever before.

BPM helps them do that. "The biggest impact has been catching exceptions early enough to actually do something about them," says Lee Aaronson, CEO of Lacks Valley Stores. "Before, we had to rely on a customer complaining about an issue or accidentally discovering that something was wrong." Now Lacks employees either receive e-mails alerting them to take action or they log in to a portal to manage exception tasks and resolve them before customers even notice.

BPM can transform customer contact operations as well. American National Insurance Co. (Anico) was one of the early adopters of BPM and has used it to streamline customer service processes across four business groups, resulting in a CSR workload capacity increase of 192 percent. "Our BPM initiatives have paid huge dividends," says Gary Kirkham, VP and director, planning and support division for Anico. "We eliminated the need for CSRs to 'dive bomb' into multiple mainframe applications to handle customer and agent requests and built rules into our process to guide them through a single view of the customer's information across multiple systems. BPM allowed us to both keep up with huge growth in our customer base and improve on all of our customer service metrics at the same time."

Of course, seasoned CIOs understand that no single new technology will be a cure-all for complex process issues. It often takes significant effort just to define who owns a process and how it actually works. If a process is bad, automation may only get bad results faster. Like Lacks Valley Stores and Anico, however, a diverse group of companies has achieved real results by leveraging BPM technology in their process improvement efforts.

A New Way to Build and Manage Processes

There is an old story about a clever university planner who waited to pour concrete sidewalks on the new campus until students had worn paths between the buildings. Tradi-

tional IT infrastructure has evolved in much the same way: Experienced practitioners now try to thoroughly understand user requirements before deploying automation that can be as intractable as concrete. Conventional approaches to reengineering and application development, however, can no longer meet stakeholder demands for rapid and ongoing process change.

BPM emerged as a response to this "move the sidewalks now" requirement once easier integration technologies finally caught up with management's ongoing push for operational improvement. Although hundreds of vendors may each define it differently, most agree that BPM gives an organization the ability to define, execute and manage processes that: a) span multiple applications and involve human interactions, and b) handle dynamic process rules and changes, not just simple, static flows.

Software vendors eventually caught on and started providing platforms that integrated process modeling, execution and management reporting of process-specific metrics. Organizations now have the tools to automate and change processes across previously isolated applications, databases and people.

Gartner defines BPM as a structured approach to managing an organization's process environment and employing methods, policies, metrics, management practices and software tools, which today are known as business process management suites (BPMSs). These integrated platforms pave the way for an organization to continually improve a process that was previously inefficient and difficult to manage. They do this by leveraging integration technologies with visual process modeling, real-time monitoring, Web-based applications and management reporting—all working together to support rapid process innovation.

BPMS adoption has spread quickly, in part because of the speed of deployment. Forrester Research estimates that the market for BPMS software is growing at a compounded annual growth rate of more than 20 percent. Between 2005 and 2009, Forrester expects annual sales of BPMS to grow to \$2.7 billion.

BPM Resources on **CIO.com**

www.cio.com/051506

- **"A New Glue or the Old Soft Shoe,"** feature article by Ben Worthen
- **"Business Process Management: Taking All The Right Steps,"** by Greg Sarafin, managing director, BearingPoint
- **"Human-Centric Business Process Management Suites,"** a Forrester report by Connie Moore (PDF)
- **Quote to Cash BPM** graphic by XPlane (JPEG)

A Diverse Product Space

Because the promise of BPM is so enticing and the target business problems are so diverse, software vendors have charged into the BPMS market from a variety of backgrounds. Each frames the problem a little differently in order to present its solution in the most appealing light. For example, workflow vendors tend to emphasize the human-to-human aspects of BPM. Middleware and infrastructure vendors focus on the importance of underlying systems integration. Enterprise content management vendors focus on the document-centric nature of processes found in financial services and other back-office operations. BPMS pureplay vendors often highlight their architectural elegance and independence from legacy product and infrastructure constraints.

The truth is that BPM will typically require elements of all of these approaches, so CIOs must thoroughly understand the types of processes they want to transform and how the BPMS will fit into their unique enterprise architecture.

The category is maturing: 2006 has seen continued growth in the number of formal

WINDOWS®



LINUX®

Fujitsu PRIMEQUEST™ Servers with Intel® Itanium® 2 Processors. Mainframe Reliability. Sized for the Mainstream.

For decades, CIOs have trusted Fujitsu mainframes to run their mission-critical applications. Now you can get the same robust engineering and innovative design with the highly reliable, high performance Fujitsu PRIMEQUEST servers featuring Intel® Itanium® 2 Processors.

Designed for Microsoft® Windows® and Linux® environments to run mission critical

System Mirror

PRIMEQUEST servers offer the ability to run memory and crossbars as mirrored pairs. This option, enabled via the Dual Synchronous Architecture in PRIMEQUEST servers, provides fault immunity for the hosted operating system and applications. The use of System Mirror transparently guards against hardware errors that could otherwise cause a system panic.

applications, PRIMEQUEST servers harness the power and performance of up to 32 Intel® Itanium® 2 Processors, to easily accommodate your largest applications. They are designed with integrated networking and management features for simplicity, and offer flexible I/O and partitioning that enhances your agility to respond to dynamic business requirements.

To learn more about how Fujitsu PRIMEQUEST servers bring mainframe reliability to mainstream environments, visit us.fujitsu.com/computers/PRIMEQUEST or call 1-800-831-3183.


FUJITSU

THE POSSIBILITIES ARE INFINITE



© 2006 Fujitsu Computer Systems Corporation. All rights reserved. Fujitsu, the Fujitsu logo and PRIMEQUEST are trademarks or registered trademarks of Fujitsu Limited in the United States and other countries. Intel, Intel Inside, Itanium, Itanium Inside, the Intel logo and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Microsoft and Windows are registered trademarks or trademarks of Microsoft Corp. in the United States and/or other countries. Linux is the registered trademark of Linus Torvalds in the U.S. and other countries. All other trademarks mentioned herein are the property of their respective owners.

BPMS RFPs issued by corporations. Because most of the leading BPMSs can easily address the requirements found in a typical package selection or pilot project, CIOs must expand on typical due diligence to include real-world scalability testing, hands-on involvement of business users, and careful evaluation of similar customer implementations. Many vendors will be able to meet the functional checklists; the goal is to ensure a good fit with the organization's approach to operational innovation.

Integration Is Key

BPMS solutions should be integrated for reasons of both speed and innovation. Be wary of BPMSs that require the process definition to be exported from one module and then imported into the next (such as between definition, simulation, execution and reporting modules). This "bucket brigade" approach increases development time and discourages process innovation. According to Anico's Kirkham, every BPM solution must go through multiple iterations both to discover the right process and to change with the needs of the business. This requires tight coupling between the process models and the actual execution and management of those processes.

As important as the BPMS feature set is how well the platform brings people and other applications into the new process. Cincinnati Bell leveraged the ability of Bluespring Software's BPMS to bring Microsoft Office apps into its quote-to-cash process. The new process reduced deal cycle time by 65 percent and finance labor time by 75 percent by eliminating manual activity related to the interaction between sales and finance on the viability and pricing of custom orders (see related graphic on www.051506.com).

In part of the new process, financial analysts receive prepopulated spreadsheets via e-mail. They conduct the necessary analysis and then e-mail the spreadsheet back so that it can go on to the next step in the process. The Bluespring software orchestrates this process and provides the necessary linkage to financial data and other systems. "The benefit is that you don't change the way peo-

Be wary of suites that require the process definition to be exported from one module and then imported into the next. This "bucket brigade" approach increases development time and discourages process innovation.

ple work, you just eliminate the administrative tasks and let them focus on the parts of their job that add value," says Chip Burke, VP of IT for Cincinnati Bell.

BPM and SOA

A good first step to implementing a BPMS is to "develop a simple and flexible integration architecture, especially if the BPM application will be used as a monitoring or orchestration layer placed on top of existing transactional applications," says Dennis Korevitski, former director of supply chain systems for T-Mobile. If a service-oriented architecture (SOA) or middleware layer already exists, BPM platforms can leverage this investment by rapidly orchestrating available services into a business process. For example, T-Mobile implemented Lombardi Software's TeamWorks BPMS to recover lost revenue from a complex returns process. The process involves customers and OEMs as well as internal financial and customer care groups. TeamWorks was able to take advantage of some existing integration points in T-Mobile's Tibco infrastructure, allowing the BPM team to focus on improving the process.

Sometimes BPM drives an organization towards an SOA. "We would have gotten there eventually," says Doug Schwinn, CIO at toy maker Hasbro. "But BPM gave us the justification to open up to our partners in a secure manner with SOA." If an SOA is not available, many BPMS platforms provide toolkits for legacy systems integration.

Although the emergence of improved integration technologies and SOA have made legacy integration easier, "you need to have respect for the hard-core challenges of integrating to legacy systems," says Phil Gilbert, CTO of Lombardi Software. "It is

hard work, and it takes more time than most businesspeople would like."

Gilbert recommends that BPM initiatives decouple the integration effort from process design—in other words, IT should manage the underlying systems integration while the business analysts are working on process design. This approach gets functionality into the hands of end users faster, even if additional systems integration shows up in later releases and further streamlines the process.

Process management challenges can arise as BPM spreads throughout an organization. Changing process flows or data sources can cause unintended side effects. But the potential to measurably improve overall organizational performance makes it well worth the effort to manage those risks. Gilbert says that the industry has only begun to scratch the surface. "The strategic value of BPM technology is process governance and providing a holistic view into all of a company's running processes—whether [the BPM platform] executes them or not."

"The ideal BPMS essentially will be a database management system for your business processes," says author Fingar. "The real breakthrough is in creating a definition of your process as abstract data." To remain competitive, organizations will have to build the capabilities to manage processes as quickly and effectively as they currently manage data. **CIO**

Mark Cooper is a managing partner with Athens Group, a consultancy in Austin, Texas. He can be reached at mcooper@athensgroup.com.

EDITOR'S NOTE: Athens Group clients include two of the companies mentioned in this article: Lacks Valley Stores and Lombardi Software.

THE ESSENTIAL ELEMENTS OF IT GOVERNANCE



Even the most effective strategy and leadership need the right data to support them. Compuware Changepoint provides the fundamental components for better decision-making. While Changepoint automates key organizational processes, you get an integrated dashboard view of IT costs, effort and value with the power to drill down for details. Hard facts delivered on demand—now that's putting true IT insight in the palm of your hand.



Discover the "Total Economic Impact" of implementing IT Governance.
Download the latest Compuware-commissioned case study conducted by Forrester Consulting at www.compuware.com/Changepoint/ROI3. Or, visit us at <http://www.compuware.com/it-governance/>.

The Hammer of Consensus

When a committee is charged with achieving unanimity, the force of its decisions is multiplied



I recently served on a special committee of independent directors formed expressly to ensure fair terms for a high-profile, multibillion-dollar takeover. The negotiations for this deal were exceedingly complex, yet the chairman of our committee persuaded us to accept a diabolically simple constraint. Any public pronouncement, decision or action we took would have to be agreed upon unanimously. If we couldn't reach a consensus, we wouldn't proceed. Period. We were all in it together.

The resulting experience was electrifying. Each of us had the explicit ability to delay, stalemate or kill any idea or initiative. That's power. At the same time, we knew that any idea or initiative we suggested required unanimous consent. As a naturally contentious guy, I feared we'd all be a bit too willing to compromise in the name of comity. Not only was I wrong, I wasn't even the most contentious.

We had knock-down, drag-out arguments where the decibels leaped. We fought over precise wording and imprecise spreadsheet calculations. We made our lawyers and investment bankers—who were exceptionally well-compensated—earn their pay with constant requests for data and interpretations to resolve our internal disagreements. There was absolutely no polite desire for early consensus.

At no time, however, did any of us exercise our veto power—not once! I can't even recall an implied threat to do so. The fact that any one of us could stop any proposal dead in its tracks liberated conversation rather than constrained it. We absolutely knew we'd take each other's comments and concerns seriously. We listened to each other so closely and carefully that potential "deal-breaker" conflicts never hit the point

because your executives only care about **ONE ANSWER** — the right one.

Now you can deliver the data consistency your organization demands.

Cognos 8 Business Intelligence is the only solution with the advanced architecture that guarantees a consistent, comprehensive view of information across your enterprise.

It's a single product with all BI capabilities — reporting, analysis, dashboarding and scorecarding. With a single query engine and centralized metadata layer that guarantee data consistency. And a single web-services based SOA that seamlessly integrates into your environment. All of which means that when your executives ask questions, they get consistent answers.

Visit www.cognos.com/oneanswer today.



COGNOS®

THE NEXT LEVEL OF PERFORMANCE™

of no return. Any decision made was owned by all of us. No weaseling; no waffling. Us.

The result? We successfully struck a deal that made the shareholders reasonably happy and the independent directors impressed with each other's diligence. Our chairman clearly knew what he was doing.

That story often comes to mind when I hear the frustrations of IT governance and IT project steering committees designed to better align budgets, schedules, requirements and priorities. We can talk all we want about the strategic objectives of the business and the "partnerships" that these committees supposedly oversee. But the simple truth is that steering committees aren't about leadership or management; they're about accountability. Strategic direction and the ongoing pursuit of operational excellence mean nothing without accountability.

When the special committee chairman got us to commit to unanimity as our metric, he effectively guaranteed individual and institutional accountability. In essence, he made us accountable to each other so we would effectively become more accountable to the shareholders we represented. That's genius. Billions of dollars and the threat of litigation were at stake. Yet with this simple mechanism, we were able to negotiate a deal that was fair to all sides.

A Betrayal of Trust

When I look at steering committees in many organizations, however, I see mechanisms for strategic direction, risk-sharing and alignment more than I see a bid for accountability. Indeed, those steering committees often seem to be mechanisms for holding others accountable—project leaders, procurement teams and so on—rather than themselves. The notion that IT steering committees can operate more like a bureaucratic tool to evade accountability than to own it appalls me. It is a betrayal of trust and an abdication, not a delegation, of leadership.

So I have to ask: Do you, as a CIO, serve on steering committees where strategic decisions and multimillion-dollar commitments can be made with individual recusals and dissents? Is the committee as a whole held accountable for its priorities and choices? Or is the aspirational whole less than the sum of its political parts?

Similarly, do you as a CIO oversee IT/business project steering committees where unanimity and consensus are as elusive as unicorns? Have you ever insisted that these committees stand by their budgets, schedules and deliverables as a unit? Let's be honest: Much of the problem is that accountability has become a fancier

word for blame. We all say we want accountability, but who wants to be blamed? (I am constantly surprised by the Enron-like denials of accountability on the part of top executives.) Yet we need to encourage individual and

group initiative even as our processes, apps and systems become more cross-functional and interdependent.

Frankly, CIOs who claim that partnership with the business units is the way to go must muster the courage to acknowledge reality. They need to insist that steering committees ostensibly designed to promote strategic alignment and other such feel-goodies be retooled around accountability. Steering committees should be platforms for accountability before being internally marketed as exercises in risk-sharing and strategy.

CIOs need to behave as if accountability is as important for committees as it is for individuals.

While in Australia recently, I heard CIO after CIO bemoaning the fact that when something succeeds, the business takes the credit, and when something fails, IT gets the blame. The steering committee chatter I heard made it clear that accountability wasn't a serious factor in their design or deployment. Consensus? Unanimity? Nonsense!

I can't help but believe that more than a few CIOs would be better off if they began insisting on unanimity. More than six decades ago, one of America's finest aircraft designers—Douglas' Edward Henry Heinemann—oversaw the production of a myriad of state-of-the-art combat planes. One of his key managerial rules was that changes had to be made by consensus. This built both esprit and better integrated, high-performance aircraft.

The wonderful paradox is that leading by consensus may be the surest way of generating the kind of arguments and candid discussion that guarantee a productive collaboration between IT and the business. The power of the veto may be the best guarantor of it never (or seldom) being used.

But the most important issue here is that CIOs need to behave as if accountability is as important for committees as it is for individuals. They need to behave as if consensus is not the byproduct of least-common-denominator compromises but the result of smart people successfully collaborating within constraints. At the risk of going meta, CIOs need to accept that they should be held accountable for how they hold their people accountable. Sometimes the best way of making people more accountable to you and to themselves is to insist they become more accountable to each other. Is that idealistic? Perhaps. But as one looks at the future of IT governance and project management, it increasingly seems the most pragmatic way to go. **CIO**

Michael Schrage is codirector of the MIT Media Lab's eMarkets Initiative. He can be reached at schrage@media.mit.edu. Please send comments to letters@cio.com.



Share Your Opinion

Have you pushed your steering committees to be more accountable? Tell us how by going to this column online at www.cio.com/051506.

cio.com

Think it's time for server optimization?

(Or are you okay with the way things are now?)



Belkin Titan 17" LCD Rack Console with 1X8 KVM Switch

- Enables secure and compact centralized server control (for up to 8 servers)
- Features OmniView Quad-Bus 1X8 KVM Switch with Micro-Cabling
- Cross-platform support for PS/2 or USB servers
- Dual-glide rail system allows the LCD panel to remain displayed even with the server-rack door closed, enabling constant server monitoring
- Offers advanced features such as a key-locking mechanism to prevent unauthorized access
- Belkin Dual-Port Micro-Cables are sold separately and are required to connect the built-in KVM switch to servers

\$2161⁹⁹
CDW 899974

BELKIN.



Belkin Titan 17" LCD Rack Console

- Works with any server or KVM switch
- Enables secure and compact centralized server control
- 2-year warranty

\$1892.99 CDW 910758

BELKIN.

The Server Solutions You Need When You Need Them.

Is managing your growing number of servers and your growing storage needs getting to be too much? Then server optimization may be just the answer. From server consolidation to storage management, networking to virtualization, CDW can answer your questions and get you the solutions you need. So call CDW today. It's time you ran your network, not the other way around.



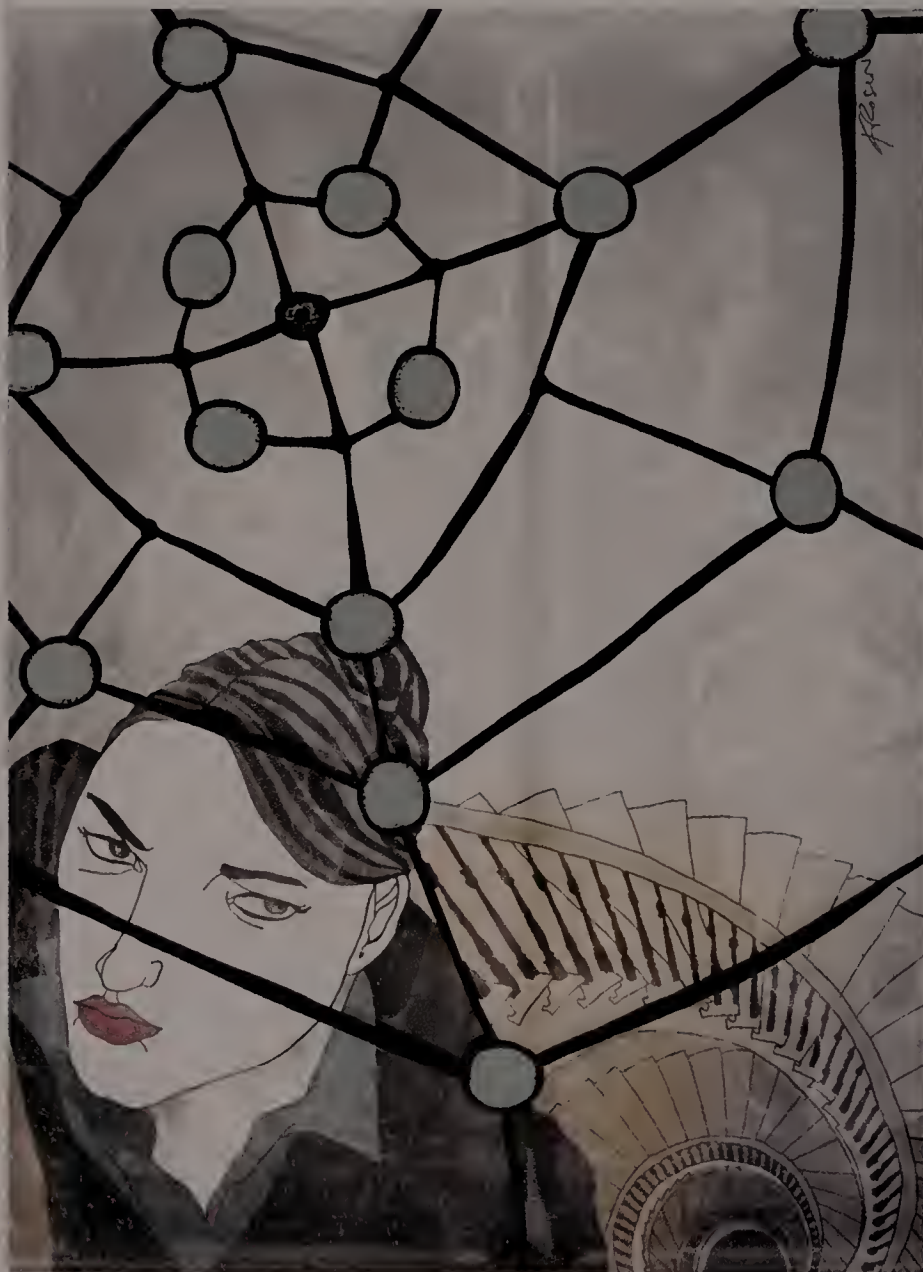
The Right Technology. Right Away.™

CDW.com • 800.399.4CDW

In Canada, call 888.898.CDWC • CDW.ca

The New Glass Ceiling

As one veteran CIO discovered, finding the next opportunity is not so easy when you're over 50 **BY SHELEEN QUISH**



How's business? What have you been up to lately? Simple questions, and for all 35 years of my professional life, they have been easy to answer. Indeed, the challenge was making sure I didn't

dominate the conversation with the excitement, changes, promotions, projects and successes over the years! I love challenges. I love problems. I love turnarounds. Let me at 'em!

That was certainly my attitude when I joined a global manufacturing firm in 2000. Yes, it was the smallest shop I had managed, but it didn't matter because of all the interesting opportunities: reengineering the infrastructure, implementing best-of-breed applications that had been purchased but mothballed, and repositioning IT from a cost center to a competitive advantage. It was an exciting time.

Losing My Endorsement

Fast-forward to the fall of 2005. The infrastructure engineering was complete, the European IT functions had been centralized and then decentralized, and the applications had been implemented. In addition, the company was going through a major management transition. But it was not unusual by any corporate standards and I had already survived three CEOs and two CFOs. I certainly expected to continue that track record. However, that was not to happen this time; the "chemistry" that bonds executives just wasn't there. Some people refer to this as "losing your endorsement," and that is a pretty good description. If I had been a major league athlete, I would have been traded to another team for some cash and some new talent. And that's OK too, because in my experience, there was always another great opportunity

EMC²
where information lives[®]



When information
comes together,
everyone pulls in
the same direction.

Information lives at companies that know how to leverage their intellectual capital. EMC[®] Documentum[®] content management software provides the industry's premier platform for capturing, securing, managing, and accessing information. Which helps companies improve productivity, mitigate risk, realize new revenue, and lower costs more than with any other provider. To find out how the leader in content management can help you do the same, visit software.EMC.com.

EMC² | documentum

EMC², EMC, where information lives, and where information lives are registered trademarks of EMC Corporation. © Copyright 2006 EMC Corporation. All rights reserved.

around the corner. The transition out of the company was graceful and dignified with the assistance of an excellent HR VP. I still have the personal farewell note from the CEO pinned to my home office bulletin board.

A New Glass Ceiling

Anticipating changes in the air, I had begun letting people know I was back "on the market" in mid-2005, confident that I would be recruited into another great opportunity in just a few months. And it started out just like the old days: interviews with executive search firms, and the follow-up interviews with key people at some very interesting companies. You know the drill. I had been down this path before and felt totally confident when I was told I was in the top two. Then I found out that the other candidate was selected. Hmmm, this was a new phenomenon for me.

Perhaps, I reasoned, the other candidate had specific supply chain functional responsibility in addition to IT, or perhaps my qualifications were more extensive than the company wanted. But now that a few more months have gone by and this pattern

it. Age is the most irrefutable thing in our lives.

How ironic: At this point in my life, I am enjoying more things than ever. Now that my kids are grown I have time to pursue new interests—bicycling, skiing, traveling, buying that cute convertible. I have never been more alive! Most people think I am in my 40s. So how do interviewers find out my real age? Perhaps it's those subtle little questions they ask so innocently when you are in the interview process such as, "Are your children in school?" Attention all baby boomers: Just say yes and then change the subject. I figured out that answering the question the way I did—"Yes, and now they are starting their own careers"—was a huge mistake. That's when the wheels fell off, so to speak.

The next thing I looked at was whether this was just my experience or was it happening to others as well. Very interesting findings surfaced here: First of all, there are a huge number of former IT management personnel who are "in transition." The one thing we all have in common is that we are over 50. From discussions at various meetings and over coffee in one-on-one chats, it is clear that we are all in the same boat. Yet

I have discovered that my difficulty finding another CIO job is not about skills, industry experience or past functional responsibilities. It is about age.

is repeating itself, I realize that something really has changed in the marketplace. I was one of the first CIOs who moved from the business side to the IT side in the early '90s. I always had communication at the core of my management style, and CIO surveys say for the fourth year in a row that communication continues to be the most critical need in IT. What's up? What's different? I am better qualified today for the CIO role than at any other point in my career. I have the experience, the energy and the drive to do an outstanding job.

My natural analytical tendencies kicked in, and I started to dissect each of my job encounters to see what I could uncover. When I didn't get the job, who did? What qualifications did the other candidates have that I didn't? I figured once I understood the playing field better I could fix the problem. Right? After all, I have built a career on fixing things.

This is what I discovered: It is not about the skills or qualifications. It is not about industry experience or being overqualified. It is about age.

Attention Baby Boomers

To me this is the ultimate kick in the head. As a career woman who has worked very hard since the 1970s to achieve credibility in the business world, who broke through the glass ceiling in business operations and then did it again in IT, I hate to think that age is the issue, because there is nothing I can do to change

our colleagues who are over 50 and still working do not seem to be aware that this phenomenon is happening. My message to you is: Stay at your current employer as long as possible because once you leave there is nowhere to go.

What a colossal waste. Companies are losing the advantage of great workers with great experience, great energy and in my case seven to 10 more years of meaningful contributions.

CIO-at-Large

The third thing I have discovered is I have a choice: I can remain frustrated or get a new perspective. I choose a new perspective, and I do so every day. I started by creating a business card for myself with a new title: "CIO-at-Large." Most IT professionals searching for the next opportunity introduce themselves as "so and so, in transition." That just didn't sit well with me so I decided to describe myself with something that energizes me. This has opened up lively discussions about what I can do in the marketplace now, not what I used to do.

I am very busy these days, attending open forums, IT information exchanges, breakfasts and special interest group discussions. I have been facilitating meetings, joining advisory boards, leading panel discussions and providing a lot of free coaching to colleagues over the past few months. There are days when I don't know how I managed to have time for a 60-

I am working with an executive life coach who is helping me identify what my personal mission is all about. It is a lot more comprehensive than a job and a title.

hour-plus workweek.

Recently new opportunities have presented themselves. I interviewed with two outstanding companies and I could enjoy the role offered in either of them. One would require relocation and I am open to that as well. We will see what develops.

What Is My Life Mission?

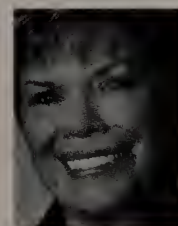
The more important question is: What do I *really* want to do when I grow up? I have reached a point in my life where I get to answer that question all over again. That is a bit unnerving. Fortunately, I am working with an executive life coach who is helping me identify what my personal mission is all about. It

is a lot more comprehensive than a job and a title. The pursuit of identifying what would make me feel happy and satisfied is one that is long overdue. Interestingly enough, this search and the networking activities I engage in are moving me toward consulting opportunities. I enjoy a great sense of accomplishment when I can help other IT

professionals achieve more success.

My coach says that "Life is a never-ending series of temporary events." This statement resonates with me and I fully expect that this evolution of my life and career will continue. I can't wait to see what the next "temporary event" will bring. **CIO**

Sheleen Quish is the former CIO of a global manufacturing company based in Chicago, and she is currently a CIO-at-Large. You can contact her at sheleenquish@aol.com. Please send your comments to Managing Editor David Rosenbaum at drosenbaum@cio.com.



Your potential. Our passion.™
Microsoft®

Invest in
your people
and success
will follow.



When a major manufacturer expanded its operations to China, its IT solution facilitated communications. Now, employees make timely orders with global vendors. People share information instead of searching for it. And distant offices feel like next-door neighbors.

The net result is a faster decision-making process that saves the company up to \$400,000 annually. When you give your people the right tools, success is inevitable.

See the full details of this case study at
microsoft.com/peopleready



**AN INTERNAL DATA BREACH CAN DEVASTATE A COMPANY'S STOCK.
AND YOU THINK YOUR MORNING COFFEE ROUTINE IS STRESSFUL.**

Think your morning is stressful? Imagine waking up to news that your company's stock has plummeted. That's exactly what you can expect if it gets hit with a data breach. Corporate valuations could tumble. So could careers. That's why there's EpiForce™ from Apani Networks™. It's built from the ground up to secure your enterprise from the inside. On top of that, it's highly scalable and creates continuous, easy-to-access audit trails. Which should make for a better start to your day.

Apani™

To learn more about securing inside the network perimeter, get a free copy of "The Definitive Guide to Security Inside the Perimeter" from Realtimepublishers, sponsored by Apani Networks. Go to www.apani.com/cioguide

Trading Up



The CEO of the Chicago Mercantile Exchange explains why he wants IT to be innovating constantly

BY MERIDITH LEVINSON

CEO CRAIG DONOHUE WANTS THE CHICAGO MERCANTILE Exchange (CME) to be the fairest, fastest, most reliable and most liquid exchange for trading options and futures. He envisions it as a place where buyers and sellers can interact whether they're individual or institutional investors, and regardless of their credit profile. He also wants the exchange to provide superior clearing, settlement and risk management capabilities for its

customers, who rely on its systems every day to trade an average of \$2.5 trillion worth of contracts for futures and options on currencies, commodities, interest rates, equity products and even the weather.

"We want to be the market leader in terms of using technology to become faster, more robust, and to improve our functionality and customer service," says Donohue.

To transform Donohue's vision into reality, the CME has developed software programs to increase trading activity in financial markets, to protect securi-

Chicago Mercantile Exchange

Headquarters
Chicago

Primary business
Options and futures trading

2005 revenue
\$921 million

Employees 1,300

CIO Jim Krause

IT employees 550

2005 IT capital expenditures
\$88 million

Craig Donohue, CEO of the Chicago Mercantile Exchange, says technology innovation has had a direct impact on the exchange's ability to grow.

ties dealers from financial risk, and to enable new services, such as trading options electronically. Over the years, the CME has also invested hundreds of millions of dollars in IT to increase the speed, flexibility and reliability of Globex, the groundbreaking platform for electronic futures trading that it launched in 1992.

Those IT investments have put the CME on a steady path toward achieving Donohue's goals. The CME is known in the industry as the "Avis" of financial exchanges—the

buyers and sellers, the more money it makes. Donohue understands that if the CME's systems sputter or don't offer the functionality customers need to execute certain trading strategies, those traders will find another exchange. To satisfy his customers, he has authorized tens of millions of dollars' worth of IT spending during his two-and-a-half-year tenure as CEO. In 2005 alone, the CME spent close to \$58 million to maintain its hardware, software and communications infrastructure. "The vast

ogy to provide us with the speed, reliability and capacity to serve our customers, who are primarily major banks, hedge fund managers and pension funds who traded \$638 trillion worth of financial instruments through our systems. This is not like shopping for books online.

Given the CME's profound reliance on technology to operate, what do you expect from IT?

IT needs to contribute to our overall financial performance. In the last eight years, we've invested more than \$1 billion in technology. We're a \$14 billion company, so that's a significant investment. Our [IT] spending has the ability to very dramatically affect our financial performance.

IT also needs to be customer-focused. Technology has become much more customer-facing for us. I can no longer send marketing people who have tremendous financial product or market knowledge but no understanding of technology to meet customers because our customers also want to discuss the technology, the interface and their concerns about speed and functionality. So we send technology people out with our marketing people to meet customers. They've become a critical part of our marketing effort. These meetings give our technologists the opportunity to get a better understanding of what a trader wants to see.

How do you measure IT's contribution to your bottom line?

It's relatively easy. There's a direct correlation between infrastructure improvements, such as enhancing speed or expanding distribution capabilities, or new technology-driven functionality and growth in our business. Of course, improvements in our marketing capabilities and things we've done strategically with pricing have also contributed to growth, but there is no doubt that the technology innovation that has occurred over the last five years has been a direct cause of much of the growth we've seen.

For example, about two years ago, we undertook a substantial commitment to making changes in the way we process data. We engaged in an extensive fine-tuning of systems and programs to dramatically

"IT needs to contribute to our overall financial performance. In the last eight years, we've invested more than \$1 billion in technology."

—Craig Donohue



marketplace that tries harder to develop and deliver the products and services that its customers want. "The CME has always been

viewed as the hungrier, more innovative, more progressive and generally more customer-friendly exchange compared to the other derivatives exchanges," says Michael Gorham, director of the Illinois Institute of Technology's Center for Financial Markets, who worked for the CME for 18 years.

Today, the CME, which was founded in 1898 as the Chicago Butter and Egg Board, is one of the world's largest financial exchanges, second only to the Eurex in Frankfurt, Germany, in the number of contracts traded annually. In 2005, the CME traded more than 1 billion contracts while the Eurex exceeded 1.2 billion, but the CME is catching up: It grew by 34 percent last year compared with the Eurex, which grew by 18 percent. The CME's trading volume has skyrocketed almost 500 percent since 2000.

Technology propels the CME's growth. Almost every major technology upgrade has increased trading activity. And the more trades the CME can match between

majority of our expenses and capital investments relate to technology. We view ourselves as a technology company because technology is the main way we distribute our products," says Donohue, who joined the CME as an attorney in 1989. He and CIO Jim Krause both rose through the ranks of the exchange and have worked together on every major technology initiative—from the development of Globex to the creation of software to facilitate trading options electronically, and everything in between.

Donohue spoke with Senior Writer Meridith Levinson about technology's role at the CME, his expectations of IT, the CME's investment in IT and his relationship with his CIO.

CIO: Describe the extent to which your company relies on technology to operate.

Craig Donohue: We operate 24 hours a day, so we have to have very reliable infrastructure and platforms. We also need extraordinary capacity because markets can become very volatile, and when they do, trading activity spikes. Our system has to be able to handle each message, order and trade. We process trades in less than two-tenths of a second. We rely on technol-



World's smallest, most compact Tablet PC.

Motion Computing's LS800 Tablet PC is a true breakthrough in size and performance. Weighing only 2.2 pounds and about the size of a paperback, the powerful LS800 features Intel® Centrino® Mobile Technology for exceptional mobile performance and productivity. Experience the versatility and mobility of the Motion LS800 pre-installed with Microsoft® Windows® XP Tablet PC Edition 2005. Don't let its small size fool you, the LS800 Tablet PC gives you all the advantages of a full-strength operating system and is tough enough to go just about anywhere.

The Motion™ LS800 is the first to give you full desktop functionality in an ultra-mobile slate Tablet PC – it's the only PC you'll need.

**Motion recommends
Microsoft® Windows® XP Tablet PC Edition.**



The LS800 Tablet PC's unique size and remarkable power delivers outstanding mobile performance and productivity with Intel® Centrino® Mobile Technology.

small durable powerful

In the U.S. and Canada, contact your
Motion Solution Provider,
call **1.866.MTABLET** or
visit **www.motioncomputing.com**



**MOBILE
TECHNOLOGY**

© 2006 Motion Computing, Inc. All rights reserved. All product information is subject to change without notice. Motion Computing, Speak Anywhere and View Anywhere are registered trademarks and Motion is a trademark of Motion Computing, Inc. in the United States and/or other countries. Microsoft Windows, Windows XP and Windows XP Tablet PC Edition are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. All other trademarks and registered trademarks are property of their respective owners.

"We want to be the market leader in terms of using technology to become faster, more robust, and to improve our functionality and customer service."

—Craig Donohue



improve the speed of execution on our CME Globex platform. [Once those infrastructure changes were implemented,] we saw the time it took to execute trades rapidly decrease while our trading volume and message traffic just about quintupled. Increasing our speed and capacity so dramatically had a huge and profound effect on our growth. It also enabled us to keep up with the growth in orders coming into the system. Today, we handle more than 8,000 transactions every second with an average response time around 40 milliseconds. Two years ago, we handled 1,000 transactions per second at an average response time of 140 milliseconds. This increase in transaction capability helps our customers better manage their positions in the marketplace and better manage their risk portfolio, both of which are critical to them.

IT clearly plays a critical role in the CME's day-to-day operations. How is it helping you achieve larger strategic objectives?

Bringing electronic trading functionality to our options markets is a top strategic priority. We have to replicate the functionality that traders use to buy and sell options in the open outcry environment, or the call-around market, with computer systems. Close to 86 percent of our futures products trade electronically. Our options products trade almost entirely on the floor. Today, 8 percent of our options trade electronically, up from 3 percent a year.

Options contracts are not quoted in the same way as futures. There's 50,000 or 60,000 different combinations of options across different strike prices and maturities that can be traded, which potentially makes electronic options less liquid. So if, for example, there's a significant earnings disappointment in the equity market on the New York Stock Exchange that causes the whole market to tumble, your risk as an

options trader is enormous. You need functionality that allows you to cancel all your quotes immediately and simultaneously. So the technology enabling the electronic trading of options has to be more sophisticated and complex. It's been a big, multiyear effort for us, and one that will continue for the next several years.

You and CIO Jim Krause have worked together during the past 17 years. How has your relationship evolved?

We did sort of grow up together, although he's a lot older than me. [He laughs.] It's a funny thing: Jim is known for having a crusty demeanor. He had a pretty senior role in technology when I joined as a junior attorney. In the very beginning, my role was to support Jim's activities and to provide [legal] services to Jim. To be honest, I was scared to death of him because he's very smart and not necessarily warm and cuddly. I quickly developed a huge amount of respect for him. I'd like to think that I earned his respect in my capacity [as an attorney].

Jim is an extraordinarily unique CIO because he has evolved with our organization. It's rare to have a CIO who knows the business in the way that he does. Jim built everything we operate: our clearing system, our Globex system, our distribution system and our market data system. He's done it all. That's not common in most large technology organizations where you typically have an enterprisewide CIO with

tremendous depth in one area and not a lot of breadth in another.

If anything has changed, I think it's just that I've increasingly taken on a very different role here over the years. Our relationship has become more a partnership of equals. Jim is an equal because he's helping devise the business environment that makes the CME successful and profitable. He provides solutions that directly impact the customer and whether or not we make money.

Describe the reporting relationship between you and Jim Krause.

I don't deal with Jim directly on the operational side. The president and chief operating officer, Phupinder Gill, does that. I spend a lot of my time as CEO of a public company traveling and meeting with institutional shareholders and analysts, and I spend time with customers and regulators. So it is not possible for me to stay on top of the day-to-day issues. But on the larger strategic issues of acquiring, licensing or developing technology, and creating flexibility for the company with respect to our ownership or control of technology, Jim and I have done all of that together over the last 17 or 18 years. Culturally, the CME isn't a very rigid or hierarchical organization. Jim and I have very open lines of communication. If he needs to speak with me he can reach me and vice versa, whether that is in person, over the phone or via e-mail.

The Tokyo Stock Exchange came under fire last year for problems with its computer systems. Is that your worst nightmare?

That is my greatest fear. We are a vital part of the global economy. If our systems are not operable or we've got slowdowns, errors or malfunctions causing problems in the market itself, that's a huge concern. We've struggled through those issues in the past, and we've had to build up the reliability of our systems and our processes. We do extensive testing before we implement new products or new trading models in the production environment. It's something we have to be cognizant of every day, all day. **CIO**

Listen In

To hear more of Senior Writer Meridith Levinson's interview with **CRAIG DONOHUE**, go to www.cio.com/podcasts and download the podcast.

cio.com

Senior Writer Meridith Levinson can be reached at mlevinson@cio.com.

**CONTRARY TO POPULAR BELIEF,
THE REAL POINT OF SERVICE
MANAGEMENT IS NOT TO OPTIMIZE I.T.
OPERATIONS OR APPLICATIONS.**

**THE REAL POINT IS TO OPTIMIZE
I.T. FOR YOUR BUSINESS.**

When your I.T. department is focused on Service Level Management; Problem Management; and Change, Configuration, and Release Management—it can be easy to lose track of the real reason for all this work:

The health of your business.

So the real question is: Can you equip your people to focus on business outcomes instead of I.T. outcomes?

Now you can. And we can help.

With Mercury BTO Enterprise™, the first software and services suite designed to help reduce the time, costs, and risks to your business outcomes.

We'd like to prove it to you.

Please call us at 1-800-837-8911 or visit mercury.com/itil.

We'll help you make very sure that your I.T. department's objective is the same as your business objective.

**CALL MERCURY AND ASK
HOW YOU CAN OPTIMIZE I.T.
FOR BUSINESS OUTCOMES.**



MERCURY

BUSINESS TECHNOLOGY OPTIMIZATION

FEDERAL I.T. FLUNKS OUT

Ten years after the
Clinger-Cohen Act
was passed to fix
federal IT, federal IT
remains broken.
Government CIOs
tell us why.

BY ALLAN HOLMES

LAST DECEMBER, about 60 people—members of the IT staff at the U.S. Transportation Department and friends—gathered in a large conference room in the agency's Washington, D.C., headquarters to say goodbye to Dan Matthews, Transportation's CIO for nearly three years. Matthews was leaving to work for Lockheed Martin. John Flaherty, chief of staff for Transportation Secretary Norman Mineta, stood up to say a few words about Matthews' accomplishments, pointing out that Matthews was always quick to help Mineta when his BlackBerry wasn't working.

Flaherty wasn't kidding.

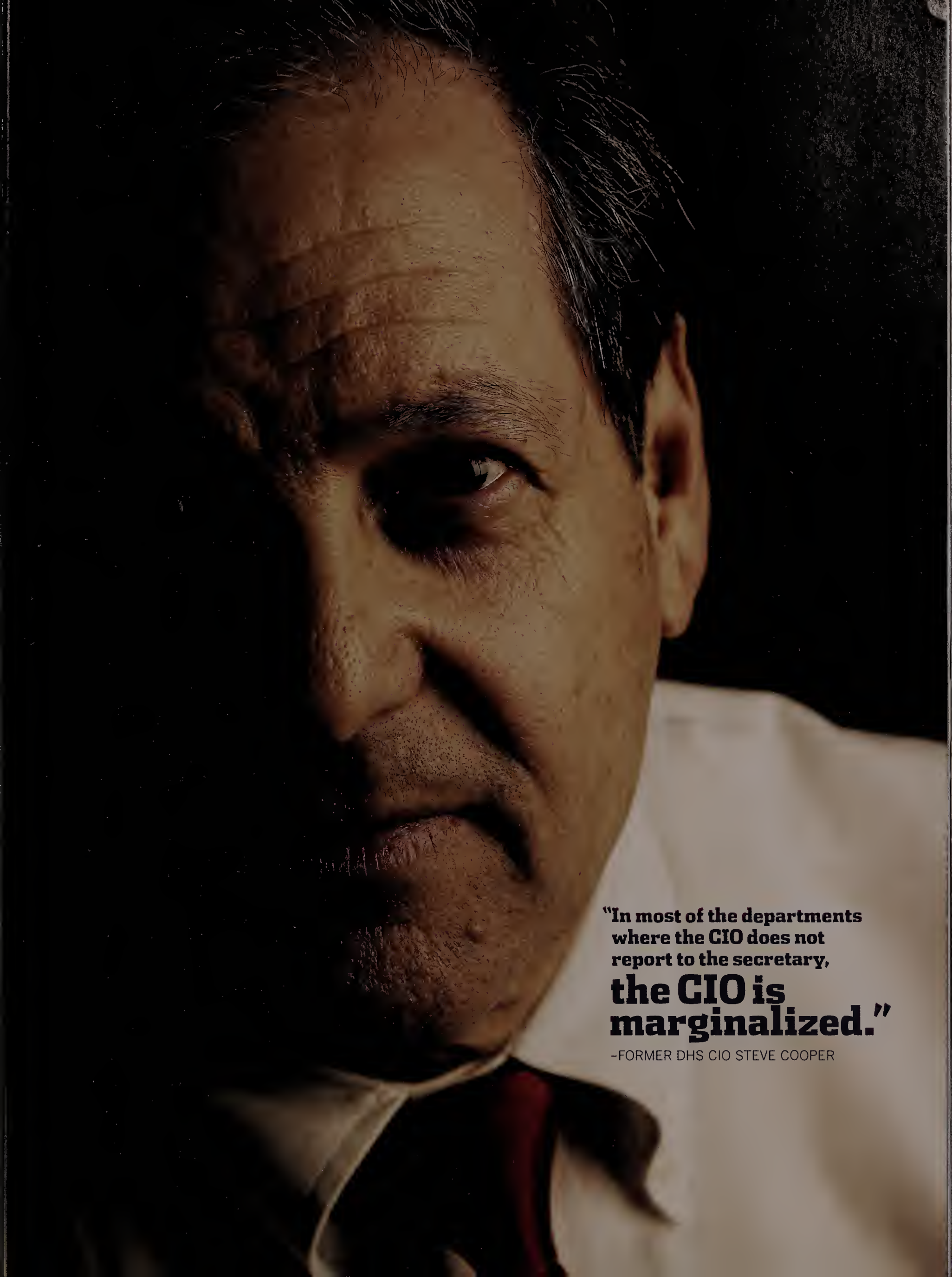
A number of people present saw Flaherty's comment as a perfect illustration of why IT at the federal level is so troubled. Government CIOs are still seen as guys who fix BlackBerrys.

"Agency executives know that CIOs provide a vital resource to organizations—they just don't know what it is," Matthews wrote in an e-mail about the incident.

If you're thinking there oughta be a law against that kind of antediluvian attitude, there is. The Clinger-Cohen Act, passed in a rare act of bipartisanship 10 years ago, outlined steps that were designed to cast federal CIOs in the role of strategists who could help agencies formulate new business processes to streamline operations, improve the delivery of public services and reduce the risk of system disasters that test citizens' faith in government—and, from time to time, put their lives in danger. Officially

Reader ROI

- :: Why federal IT is so prone to failure
- :: The impact of politics on project management
- :: How to fix the problem



**"In most of the departments
where the CIO does not
report to the secretary,
the CIO is
marginalized."**

-FORMER DHS CIO STEVE COOPER

known as the Information Technology Management Reform Act of 1996 (and later renamed the Clinger-Cohen Act after Rep. William Clinger and Sen. William Cohen, who pushed the legislation through), the law demanded that federal agencies follow corporate America's best practices for managing IT. Agencies were required to hire a CIO, institute investment controls and establish performance goals and metrics to measure progress. The law was hailed as the tool that would finally fix federal IT.

"We really thought we had it nailed," says Paul Brubaker, one of the lead authors of the law when he worked as a Republican staff director for Cohen. "We were going to change the way government managed IT and in doing so, possibly change government."

Obviously, that hasn't happened.

Roots of the Problem

Federal IT systems are still failing at an alarming rate nearly 10 years after Clinger-Cohen was signed into law by President Clinton. For example, of 16 IT projects in the Federal Aviation Administration's massive 25-year-old modernization program, 13 are over budget, ranging from \$1.1 million to \$1.5 billion, according to the Government Accountability Office. The Army's Future Combat System—a fully integrated set of networks to deliver real-time information to the battlefield through sensors that pinpoint high-tech weapons—could come in as much as \$130 billion over its original 2001 budget estimate of \$70 billion. The Interior Department's IT systems have proved so insecure that over the past three years a federal judge has repeatedly ordered the department to shut down all its Internet access. The list goes on, with the IRS's repeated failures to modernize and the disaster of the FBI's virtual case file system merely two of the most well-publicized examples.

In all, from January 2004 through March 2006, the GAO issued 98 reports on federal IT management, with almost every blue-covered report finding serious management flaws that increased the risk of IT failures.

The fundamental problem is that no matter how talented the CIOs (and many have been capable, proven executives who moved to the federal government after successful careers in the private sector with the admirable ambition of bringing their skills to bear on bigger and more socially significant problems than the ones they tackled in the corporate world), they have been set up for failure by a political and bureaucratic system that has changed little since the Clinger-Cohen Act became law.

Former federal CIOs say Clinger-Cohen was thoughtfully constructed and highly detailed but fell apart in practice. Lacking any real enforcement mechanisms, its provisions called for changes that could easily be subverted or simply ignored. For example, the centerpiece of the legislation, creating a CIO position for the agencies, quickly fell prey to political maneuvering that in many cases left those CIOs with little real influence over policy-making, where real political power lies.

"The Clinger-Cohen Act was totally bastardized to fit political agendas in both [the Clinton and first Bush] administrations, missing the point of making the CIO a strategic player in an agency

The Clinger-Cohen Act What It Is

Congress passed the Clinger-Cohen Act in 1996 to instill private-sector IT management best practices in federal agencies. One of the most important provisions of the law requires the largest agencies to create a CIO position. The CIO was envisioned to be a top-level executive who would provide strategic insight into how IT could help mold the business processes used to deliver public services. The law also did away with much of the bureaucratic red tape that agencies were required to follow to purchase IT equipment and services, which prolonged many procurements by years. The Clinger-Cohen Act's primary provisions are:

- » Create a CIO position that reports to the head of the agency.
- » Develop an IT capital planning and investment process.
- » Set performance goals and standards for IT systems.
- » Create an enterprise architecture.
- » Evaluate the skills of the agency's IT staff and identify skill gaps.
- » Evaluate the IT skills of the agency's executives.
- » Develop hiring and training plans for the agency's workforce to improve IT management.

Why It Failed

- » Most federal CIOs do not report to the head of an agency and few have full authority over the agency's IT budget.
- » Capital planning and investment reviews fail because reports are seen as paperwork exercises, and the Office of Management and Budget does not measure results or work with agencies to fix specific weaknesses in the most high-risk IT projects.
- » Few agencies measure whether performance goals and standards have been met and are given little guidance on how to do so.
- » Most agency architectures are too technical and detailed (down to the desktop) and do not serve as a blueprint of an agency's business processes, including where systems need to be interoperable and the best way to apply technology.
- » Lack of project management skills is still cited as one of the primary causes of project failures.
- » Agency leaders still lack knowledge of IT's role. —A.H.

rather than just the technology go-to guy," says a frustrated Brubaker. "We have the same basic problems we did 10 years ago."

To find out what these problems are—and how to address them properly—CIO interviewed dozens of current and former federal CIOs and government officials. We discovered four broad problems: the CIO's lack of authority, specifically over budgets; cultural

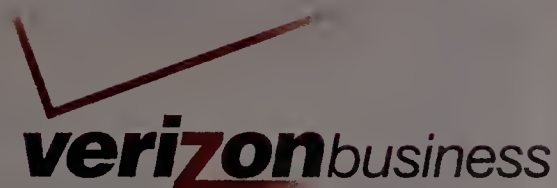
A communications
partner that will
help you grow
and manage
that growth.

that works  

©2006 Verizon. All Rights Reserved.

Now there's a global team of experts you can rely on to help improve your network efficiency, take on network management tasks, and give your communications solutions the power to drive your business.

Meet your new communications partners at verizonbusiness.com

**verizon**business

We never stop working for you.

and political resistance that derails sound IT practices; poor project management discipline; and paperwork exercises that require CIOs and their staffs to spend huge amounts of time proving that they are adhering to administration directives.

These problems aren't simply about wasted effort and expense. Lives are at stake:

» Federal networks, for example, are more vulnerable to attack from hackers and terrorists than five years ago, according to the GAO.

» The FAA's air traffic control system at Boston's Logan Airport malfunctioned last October, showing false aircraft icons on radar screens.

» Federal communications systems broke down after Hurricane Katrina, hindering rescue attempts.

» Army units in Iraq routinely run out of critical supplies because of failures in supply chain systems. The GAO has charged that the Department of Defense's "substantial long-standing management problems related to business operations and systems have adversely affected the economy, efficiency and effectiveness

of its operations; and, in some cases, impacted the morale of our fighting forces that are in harm's way."

"Ultimately this is a security threat," says John Reece, a former IRS CIO and now a consultant to the federal government. "If we can't get beyond the legacy systems we have today, while our enemies are starting off with state-of-the-art technology, what's going to happen is they're going to absolutely tear us to pieces again. I say this because I, and others like me, give a big damn about what we've been trying to do, and we would like to see this stuff get cleaned up before it's too late."

Problem 1: The CIO's Lack of Authority

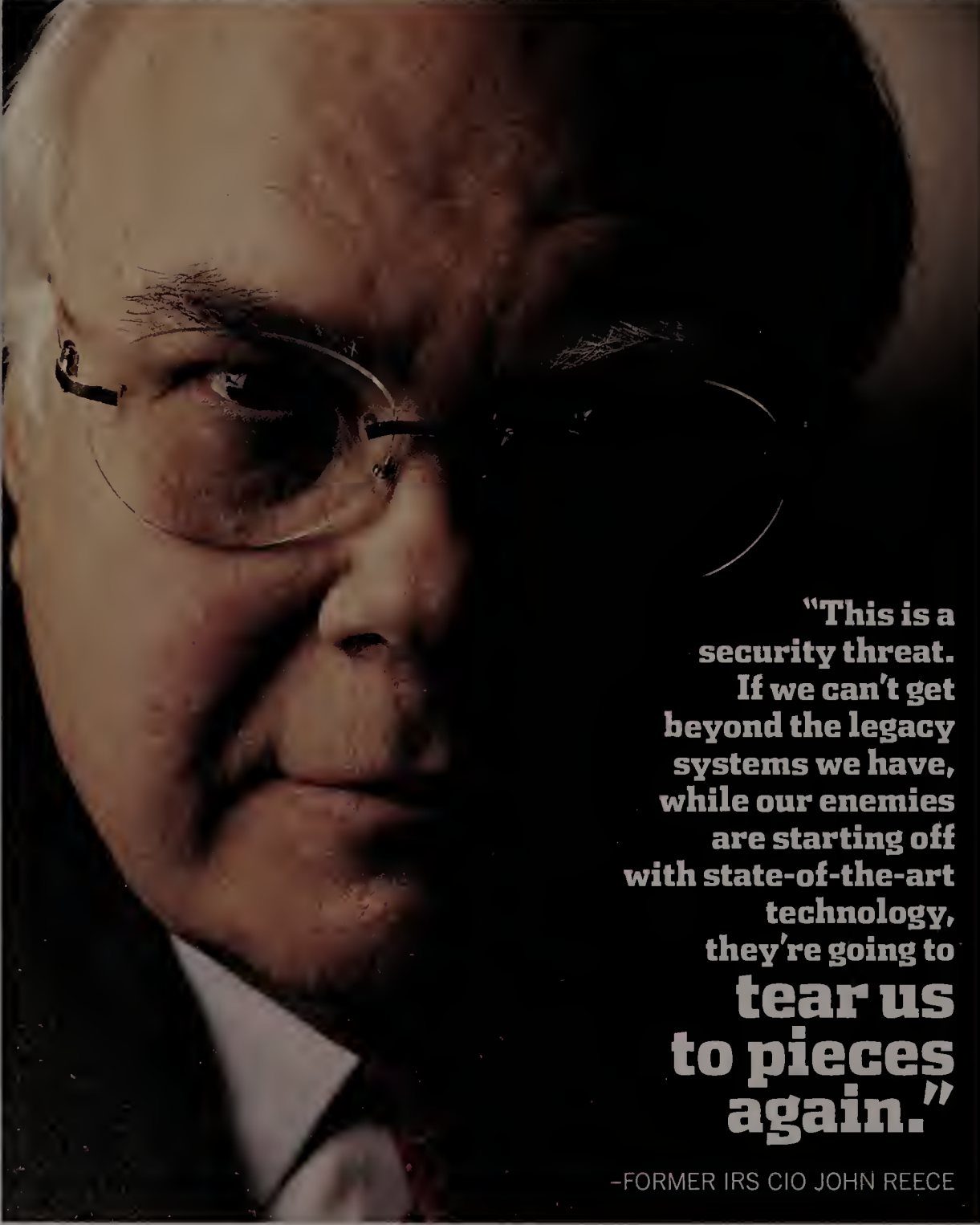
In the private sector, if CIOs don't report to the CEO (or at least sit in on C-level meetings), IT strategy will suffer or, at best, become predominantly tactical. The CIO's authority is limited, even if his

accountability isn't. According to CIOs who have tried to bring their private-sector experience to government, at most federal agencies CIOs simply don't have the authority, or the access, to do their jobs properly.

Steve Cooper, a former CIO at technology company Corning, decided to join the federal government after he witnessed the collapse of the Twin Towers in New York City. A former Naval officer, he had experience with the intricacies of government. But when he became the first CIO at the Department of Homeland Security in 2003 (after spending a year as CIO of the Department's precursor, the Homeland Security Office), he ran into a culture that viewed the CIO as a technologist, not as a strategist who could help mold an organization's business processes.

Congress and the Bush administration envisioned that DHS would use IT to gather intelligence and share it among federal agencies to better fight terrorism. With IT playing such a critical role, the agency's CIO, presumably, would have direct access to the secretary (the CEO equivalent), and be included in strategy sessions for the department's \$37 billion IT budget. But that didn't happen. In fact, the DHS organizational chart doesn't even list the CIO position among the agency's 29 top senior positions. From the beginning, Cooper found himself locked out of key strategy meetings. And his budget requests—such as \$39 million for network connections between DHS agencies—were summarily cut, in this case by \$28 million, in a closed-door meeting that included Janet Hale, DHS undersecretary of management and Cooper's direct boss. Cooper maintains he was afforded no opportunity to question the cut. "That one decision jeopardized the entire mission."

Continued on Page 58



"This is a security threat. If we can't get beyond the legacy systems we have, while our enemies are starting off with state-of-the-art technology, they're going to tear us to pieces again."

—FORMER IRS CIO JOHN REECE

Common network driver.

"#1 Copier/Multifunction Product in Overall
Customer Satisfaction Among Business Users"
— According to J.D. Power and Associates



Uncommon simplicity.



For IT Professionals: Reliable, High Performing Printers and MFPs

Kyocera's complete line of MFPs and printers utilize a common driver and a common user interface. This makes life simpler and more efficient for IT professionals and more productive for users. We call it Network Reliability, and that's one of the ways we help business meet strategic goals and produce cost-effective document solutions. Kyocera is your answer for image management, network diagnostic utilities and a complete suite of document security solutions. That's the power of People Friendly. Learn more: www.kyoceramita.com

People Friendly.

THE NEW VALUE FRONTIER



KYOCERA MITA CORPORATION. KYOCERA MITA AMERICA, INC.

©2006 Kyocera Mita Corporation. "People Friendly," "The New Value Frontier," the Kyocera "smile" and the Kyocera logo are trademarks of Kyocera.



August 20-22, 2006

Hotel Del Coronado
Coronado, California

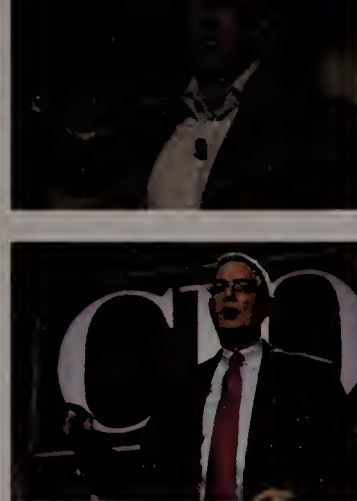
CIO100

SYMPOSIUM & AWARDS CEREMONY

The 8th Annual
CIO 100 Symposium & Awards
Delivering Innovation to the Enterprise

CIO 100 Symposium is the premier place for CIOs to exchange ideas with their peers across all industry segments as noted thought mavens and recognized leaders in the CIO community explore how to develop, implement and capitalize on innovation most effectively.

To register or for more information
visit www.cio.com/conferences or call 800.355.0246.



SESSION HIGHLIGHTS

Where's the Next Wave of IT Innovation Coming From?

If innovation is the key to the future, where are our next innovators going to come from and how will that affect businesses here and around the world?

Tapping Internal Creativity

Approaches to innovation can be as varied as the initiatives it produces. Foster creative thinking and your employees will provide original ideas and pioneer new products. Hear from CIO 100 winners who discovered and developed their internal innovation sources.

HOT TOPIC SOA—Are You Ready?

Service-oriented architecture (SOA) allows IT to respond quickly to new business needs to deliver applications in real time, or on demand. Discuss the latest developments and implementation strategies with this leader in the field.

Why Not "Not Invented Here"?

Innovation labs, design firms and consultants are playing an increasingly large role in the pursuit of innovative ideas. For many companies the once firmly held belief that innovation had to be homegrown is falling by the wayside. Learn how this company is maximizing their outsourcing partnerships, realizing a new way of doing business and generating innovation from outside the company.

Oh, And One More Thing.....

What is it? What is the one thing more you need to know, learn and take away from this experience? Here from an innovation guru on just what that one more thing might be.

WHO SHOULD ATTEND

Leaders in the CIO community, who want to explore how to develop, implement and capitalize on innovation.

In other words, you.

CIO 100 Symposium Awards are proudly underwritten by



Official Host Sponsors

BlackBerry.

WIRELESS DEVICES

i R i s e

VISUALIZE. INNOVATE. DELIVER.™

APPLICATION DEFINITION SOFTWARE

redhat

OPEN SOURCE

symantec.

SECURITY

Sponsored by



INTERWOVEN

Microsoft | Executive Circle



What Business Demands.

Presented by



Business
Technology
Leadership

14th annual
CIO 100 Awards Ceremony

INNOVATION TAKES CENTER STAGE

Celebrate 100 winners with 100 innovative technology solutions that revolutionized 100 world class organizations.

Register Now.

www.cio.com/conferences

CIO 100 Symposium & Awards **Welcome to the Conversation.**

Continued from Page 54

ardized the department from day one," Cooper says. "In most of the departments where the CIO does not report to the secretary, the CIO is marginalized." (DHS public relations did not respond to repeated requests for an interview with Hale, who resigned in February.)

"The Clinger-Cohen Act was totally bastardized to fit political agendas, missing the point of making the CIO a strategic player in an agency rather than just the technology go-to guy."

—PAUL BRUBAKER, ONE OF THE LEAD AUTHORS OF THE CLINGER-COHEN ACT

This issue of access and authority still exists for DHS CIO Scott Charbo today, according to DHS Inspector General Richard Skinner. In his annual departmental report on management performance in December, Skinner stated bluntly that Charbo did not have the authority to do his job. "Despite federal laws and requirements, the CIO is not a member of the senior management team with the authority to strategically manage departmentwide technology assets and programs," Skinner wrote. (DHS public relations did not respond to repeated requests for an interview with Charbo.)

Having the ear of the head of an agency does not, however, automatically guarantee the CIO's authority. When the IRS's Reece, a former CIO at Time-Warner, accepted the CIO position in March 2001, he wanted to outfit the 14,500 IRS field agents with laptops in order to untether them from the three PCs on their desks that they needed to access various legacy systems. Although each laptop cost \$300 more than a desktop, Reece argued that by allowing the agents to spend more time in the field, the extra cost easily would be recouped in increased productivity.

Reece got \$45 million in his fiscal 2002 budget to pay for the upgrades. But because he did not have control over spending, the money was quickly siphoned off by other IT managers to pay for more employees to manage the existing legacy systems and the three desktop PCs needed to access them. Soon, Reece had nothing left for the laptops.

"This shows how little control I had," Reece says. "What laws the government has to oversee IT are totally ineffective, are not heeded and not enforced."

If federal CIOs are going to have a chance to turn around government's poor IT management record, agencies need to provide them with authority—especially budget authority, says Joel Willemssen, who heads up the IT audit division at the GAO. Though some agencies have given the CIO budget

authority today, they are the minority. "The greatest single failure of government IT has been the lack of authority provided CIOs," he says.

Another aspect of authority is tenure. To effectively develop and oversee the implementation of major programs, CIOs need to stick around. Indeed, the tenure of CIOs has been rising steadily in recent years, to an average of four years, 11 months, according to CIO's "State of the CIO 2006" survey. But the average tenure of a federal CIO today is two years, according to Willemssen. (Willemssen says best practices recommend a minimum three-to-five-year term for federal CIOs.) The reasons for CIOs' short terms are numerous, including the frustrations of the job, a culture of public service that says two years is enough to give to your country, and the pay. (Federal CIOs cannot earn more than \$133,000 a year.) Of course, agency heads have to make good choices if they are going to leave CIOs in place for five years. "All the stature and power in the world is no help when you can't take an IT agenda and drive it," says Dan Chenok, former branch chief of Information Policy and Technology in the Office of Management and Budget.

Problem 2: Politics as Usual

When the federal CIO role was mandated by the Clinger-Cohen Act in 1996, the job was considered a career position to which anyone could apply. The Bush administration, however, began appointing people to some of these positions, with some requiring Senate confirmation.

All presidents employ appointments as a way to repay political debts, but many present and former federal CIOs believe that government IT has suffered badly under this practice, mostly because so much specialized knowledge is required to do the job effectively. Today, 11 federal CIO positions are appointed (out of dozens of CIOs in the federal government), mostly to larger agencies such as DHS. Of those 11, five positions are vacant, and among the other six, three of the appointees came in with little or no IT management experience. Some IT experts argue that politically appointed CIOs have more clout because their affiliation with the White House means they may be more trusted and respected by the top executives—also politically appointed—in the department.

But many federal CIOs say off the record (none would go on record) that the appointments process has delayed many critical IT projects as the appointees come up to speed on agency processes without having the understanding of IT management that career managers possess.

In 2001, for example, President Bush appointed Vickers Meadows as assistant secretary for administration and CIO for the Department of Housing and Urban Development. Meadows had no previous

experience in IT. She had served as Bush's head of administration while he was governor in Texas, and later she headed up the administrative transition team in the White House. In less than 18 months, Meadows left HUD, and the CIO position reverted to a career post. During her tenure, the HUD inspector general issued numerous criti-

Inside Clinger-Cohen

To read the **CLINGER-COHEN ACT**, go to govinfo.library.unt.edu/npr/library/misc/itref.html. To see what the GAO said about federal CIOs' responsibilities, tenure and challenges, go to www.gao.gov/new.items/d04957t.pdf.

CIO.COM

IF YOUR BUSINESS INTELLIGENCE IS SO SMART



WHY ARE SO FEW USING IT?

YOU NEED BI WITH A HIGHER IQ

Information Builders powers the largest business intelligence deployments in the world. All of your employees—not just managers and analysts—need to make quick and informed decisions. That's why we pioneered Operational BI—to deliver intelligence directly to all of the people and processes that need it, inside and outside the enterprise. Our **WebFOCUS** software offers superior integration, scalability and usability. Add in years of experience and it's no wonder our customers save millions using business intelligence. **Make the smart move and call for your FREE BI Best Practices Assessment at 1.800.969.INFO or visit www.informationbuilders.com**

**Information
Builders**

The Standard for
Enterprise
Business
Intelligence

cal reports on the department's IT management practices, including poor security controls, systems open to attack, and IT system projects being started before developing architecture plans, establishing business processes and identifying how systems would function. (Meadows did not respond to CIO's requests for comment.)

In 2003, Bush appointed Drew Ladner to head up the Treasury Department's CIO office and its \$2.6 billion IT budget. Ladner, a then-34-year-old entrepreneur who had launched two dotcom companies, Clique.com and Ripcord Systems, worked at Treasury for little more than a year before leaving. Today, the Treasury Department CIO is no longer appointed. (Ladner could not be reached for comment.)

In 2004, Bush named Bob McFarland as CIO for the Department of Veterans Affairs. McFarland, who worked as vice president of government relations at Dell Computer and headed up business units for the computer maker, had no CIO experience. Under McFarland, the VA continued to struggle with IT management issues. Its security grade, as issued by Congress, dropped from a C in 2003 to an F in 2004 and again in 2005.

Still, McFarland, who left the VA in April, claims that he was able to make major changes that no career CIO could have. For example, he says he convinced Congress to give the VA CIO control over the department's \$1.6 billion total IT budget (initially, McFarland controlled only \$50 million of the total), and pushed through a reorganization supported by VA Secretary James Nicholson that gives the CIO control over all IT personnel and equipment. The VA's hundreds of field offices, hospitals and clinics previously had control over their own IT budgets, personnel and IT equipment. "To get those kinds of things done, you truly have to be politically appointed with a seat at the [senior management] table," McFarland says. "I don't have to worry about my next career move. I can be a change agent and not worry about being a good guy and pleasing everyone."

However, some CIOs have obtained full budget authority while holding a career position, such as Zalmay Azmi, CIO at the FBI, who took control over the bureau's budget last year. More significantly, the GAO concluded in a 2005 report that the government's most effective CIOs "had [a] background in information technology or related fields, [with] many having previously served as CIOs. Many also had business knowledge related to their agencies, having previously worked either at the agency or in an area related to its mission."

But, as a top federal IT executive currently working for a major agency (speaking on the condition of anonymity) says, "This administration doesn't like government; it doesn't like career bureaucrats."

Unfortunately, that aversion to government has not improved the chances for government IT success.

Problem 3: Welcome to the Bureaucracy

The Clinger-Cohen Act was supposed to improve IT project management practices by requiring CIOs to assess the skill sets they had, determine what IT skills they needed to meet mission-critical requirements and then fill in whatever gaps they saw by hiring or

Politically Appointed CIOs

Department of Defense John G. Grimes



Last positions:

1. VP of Intelligence and Information Systems for the Washington Operations, Raytheon
2. Deputy Assistant Secretary of Defense for Counterintelligence and Security Countermeasures

Department of Agriculture David Combs



Last positions:

1. Special assistant to the CIO, overseeing project management of selected key USDA IT investment projects
2. Special assistant to the Administrator of Rural Utilities Service, with responsibilities including strategic planning and IT support services

Social Security Administration Thomas Hughes



Last positions:

1. Managed own consulting firm
2. Senior consultant for PricewaterhouseCoopers

Department of Labor Patrick Pizzella



Last positions:

1. Chief of staff to the director at the U.S. Office of Personnel Management
2. Government affairs counselor, Preston, Gates, Ellis and Rouvelas Meeds, a policy practice group

Department of Homeland Security Scott Charbo



Last positions:

1. CIO of the Agriculture Department
2. President of MPower3 and extension agent for the University of Florida's Institute of Food and Agricultural Sciences

CIO Wanted

At press time, the CIO position at these agencies was vacant

- ☐ U.S. Agency for International Development
- ☐ Department of Veterans Affairs
- ☐ Department of Transportation
- ☐ Department of Education
- ☐ Environmental Protection Agency
- ☐ Small Business Administration

training employees. That hasn't happened. According to present and former federal CIOs, federal oversight inspectors and project management experts, federal project managers routinely do not follow even some of the more basic project management practices, such as



CHIEF DEMAND OFFICER

IT'S A DEMAND-DRIVEN WORLD. BE A DEMAND-DRIVEN ENTERPRISE. SSA Global extended ERP can help make customer demand drive your entire enterprise. Find out how we make the concept of demand-driven supply chain a reality – built on processes, infrastructure, and information flows that can sense and react to changing demand in real time. Across a network of customers, employees, and suppliers. **Let's get started.**

Download *Demand Drives*, your guide to becoming a demand-driven enterprise,
at www.ssaglobal.com/demanddrives/na. Or call 1-877-SSA-GLOBAL (1-877-772-4562).

CPM

CRM

ERP

FM

HCM

PLM

SCM

SRM



conducting ROI analyses, developing thorough business cases or establishing project management offices—the absence of which increases the chances for project failures.

The OMB has tried to instill some discipline, in 2001 requiring agencies to begin submitting business cases for proposed IT systems. These cases must show return on investment, demonstrate that proper project management practices are being followed and articulate how the system will help the agency fulfill its mission. The OMB reported in 2005 that of the 1,200 business cases it received that fiscal year, 621 projects totaling \$22 billion did not meet its standards. But the GAO reported in 2005 that the OMB neither created a list of the projects and their weaknesses, nor did it develop a monitoring process to determine if agencies were making progress on addressing those weaknesses, possibly leaving “unattended weak projects consuming significant budget dollars.”

“By now,” says Bruce McConnell, a former OMB IT official in the Clinton administration and now president of the consulting firm McConnell International, “the business cases have become largely a paper exercise, especially when you match the volume of reports with OMB’s capacity to review them. OMB should focus on results and manage by exception, requiring detailed reports only where there’s a history of problems.”

But the reasons that basic project management disciplines are not followed cannot all be ascribed to incompetence, mismanagement or red tape. For example, one of the largest IT transformations

in government is occurring in the DoD. The department is modernizing its business management systems, which account for \$605 billion a year in operating costs.

Part of the modernization effort consists of developing an ERP system to connect DoD’s business systems. But because DoD operates so many systems across so many entities, each with its own organizational structure, governance and leadership, trying to manage the project is an exercise in futility, says Drew Miller, a consultant with Heartland Management Consulting Group who worked as a program manager on the project in 2005. Miller oversaw the development of architecture requirements for strategic planning and budget systems and policy for the overall program. Miller says anytime a back-end system was altered in any way, interfaces to other systems had to be redone, diverting time from developing new systems. Because the systems (a total of 542 accounting and financial management systems and 665 human resources systems) span the entire DoD enterprise, correlating decisions on software or on configurations is close to impossible, Miller says.

What’s needed is a top-level executive to make enterprisewide decisions, suggests Miller, and the GAO has recommended Congress establish a chief management officer for the DoD business systems modernization effort. The chief management officer would serve for no less than seven years, work in concert with the DoD CIO and top program managers to focus attention at the enterprise level on how systems should be integrated, and act as the liaison

Patterns of Failure

Federal IT projects run over budget, fall behind schedule and collapse with depressing regularity

Agency	Project	Budget	Money Spent	Project Schedule	Status
Dept. of the Interior	Consolidate 16 financial systems to one	\$120 million	\$63 million	2003–2007	Failed. Restarting project.
Dept. of Homeland Security	Infrastructure upgrade	\$550 million	\$104 million	2002–2004	Failed to meet project specifications required by law.
Dept. of Defense	Online travel booking system	\$464 million	\$264 million	1998–2002	Four years behind schedule.
FBI	Web-based case management system	\$119 million	\$170 million	2001–2004	Failed. Restarting project.
Transportation Security Administration	Infrastructure modernization	\$1 billion	\$834 million	2003–2009	Failed. Restarting project.
Dept. of Homeland Security	Integrate eight legacy financial systems	\$229 million	\$18 million	2003–2005	Failed. Restarting project.
IRS	Data security	N/A	N/A	2002–present	Still defining security controls.
Federal Aviation Administration	Air traffic control for 16 projects	\$8.3 billion	\$11.4 billion	Four projects on schedule; 12 projects 1 to 13 years behind.	Reassessing investments and practices.

SOURCES: GAO, inspectors general at DHS, DoJ and DoD; CIO reporting



Data. It's his most vital asset. Just ask him.

Instant accurate information is what he needs to make the best decisions possible. Motorola's Wireless Mobile Data Solutions can provide streaming video at vehicle speeds of up to 200 miles per hour. For over 30 years, government agencies have first turned to Motorola for leading-edge wireless data technology to help keep everyone safe.

Learn more at www.motorola.com/datasolutions where you can subscribe to the series on Motorola's Wireless Mobile Data Solutions.

For government agencies everywhere, Motorola is making it happen.

MOTOROLA and the Stylized M logo are registered in the U.S. Patent and Trademark Office. All other product or service names are the property of their registered owners. © Motorola, Inc. 2006



MOTOROLA

between the hundreds of IT program managers.

The people systems in federal IT are also tangled. Hiring practices are mired in decades-old rules and laws that prevent CIOs from quickly reworking staffs to meet needs. For example, the federal government's backlog for security clearances, which many IT managers, programmers and contractors need to work on IT systems that handle sensitive and classified information, is estimated to be 300,000 for federal employees and more than half a million for contractors. It can take months to obtain a clearance.

So far, none of these problems have been fixed.

Problem 4: Buried in Paper

Like private-sector CIOs, federal CIOs complain that they don't have enough time to focus on strategy. But at least private-sector CIOs don't need to document all their actions. Frustrated by the lack of progress and accountability in major IT projects, Congress and the OMB began in 2002 to increase the demands on CIOs to document just about everything they do.

The cure, however, may be worse than the disease. CIOs are bogged down making sure IT program managers are filing business cases and earned value scores to the OMB, while periodically writing detailed reports to Congress. The CIOs' chief security officers may have it even worse, spending nearly half their working day (an average of 3.75 hours) documenting their adherence to federal security requirements, according to a survey conducted by Intelligent Decisions, a systems integrator. The result, say IT executives at the agency level, is less time to spend on developing secure systems.

The root of much of this paperwork comes from the 2002 Federal Information Security Management Act, or FISMA, which actually has little to do with measuring how secure systems are, contends Bruce Brody, the head of information security at market research firm Input and former CSO for the departments of Veterans Affairs and Energy. The law requires agencies to file quarterly reports and an annual report each September to Congress and the OMB showing that they are complying with the law—attesting over and over that they have certified and accredited every system, conducted an inventory of systems, and trained employees in security awareness, among other things. "It's all about writing reports and counting those reports," agrees Alan Paller, director of research at the SANS Institute. "It doesn't actually measure if systems are secure."

Some CIOs and CSOs view the government's mandates purely as check-the-boxes exercises—inviting yet more negative attention from Congress. It's not therefore surprising that the government received a D+ grade from Congress in March on FISMA compliance.

Karen Evans, administrator of e-government in the OMB and

The Federal Information Security Management Act is "all about writing reports and counting those reports. It doesn't actually measure if systems are secure."

—ALAN PALLER,
RESEARCH DIRECTOR,
SANS INSTITUTE

the top official in the Bush administration overseeing IT development, defends the quarterly security reports as a way to tell CIOs and their CSOs what to focus on. "To provide that report, you have to know what service you provide, the risk it imposes, how you are managing configuration management, and how that plays into all the other systems and inventories," says Evans, a former CIO at the Department of Energy. "If you don't know what the lay of the land is, then you are always putting out fires, and there's no way to proactively manage the risk."

CIOs argue that the landscape is already well known. What they need is time to traverse it. Brody and Paller recommend that OMB establish a better methodology for performance measurements. Instead of asking whether certain actions have been taken, it should ask how agencies have conducted specific exercises that result in more secure systems, such as what authentication processes CIOs

have deployed and what processes agencies are using to monitor and patch systems, how quickly patches are disseminated, how often passwords are changed and what convention they use for passwords.

"Those writing the requirements just need to listen to those doing the work," says Brody. "We all want our systems secure." But, he adds, "the government is no more secure today than it was five years ago—and it wasn't secure then."

The Prescription: Leadership, Not Laws

An axiom in Washington is that Congress does 20 percent of the heavy lifting in policy-making; the other 80 percent is accomplished in federal agencies where policies are interpreted and implemented. The solution to improve government IT management does not lie in more legislation, or a rework of the Clinger-Cohen Act, federal IT experts say.

As in the private sector, the solution lies in leadership. The common thread in all the criticism of the Clinger-Cohen Act will sound familiar to private-sector CIOs: It takes buy-in from top leadership to change how organizations operate, and that includes the use of IT. A good place to start may be with those who are leading the departments and the ultimate agenda setter, the White House, says Paller. "If everyone is failing, then it's not the pupil's problem, it's the teacher's problem," he says. "And that means the teacher needs to look at what he's doing wrong." **CIO**

Washington Bureau Chief Allan Holmes can be reached via e-mail at aholmes@cio.com.

meet the CEO of

At adidas®, trend analysis tells him what's about to happen before it does.

the next big thing



Business Performance on an entirely new scale. Consistent, reliable reporting is helping adidas predict the future. Now sales managers can quickly gauge market trends and turn on a dime. At adidas, the world's only integrated business intelligence platform has earned its stripes.

Business Objects™

The Business Objects logo is a trademark of Business Objects Corporation in the United States and/or other countries. adidas is a registered trademark of adidas Group AG. © 2006 Business Objects Corporation. All rights reserved.

3 Ways to Do More With Less

CIOs at midsize businesses face many of the same security problems as CIOs at larger companies, but with a lot fewer resources. What they've learned can help you get by on less.

BY SARAH D. SCALET

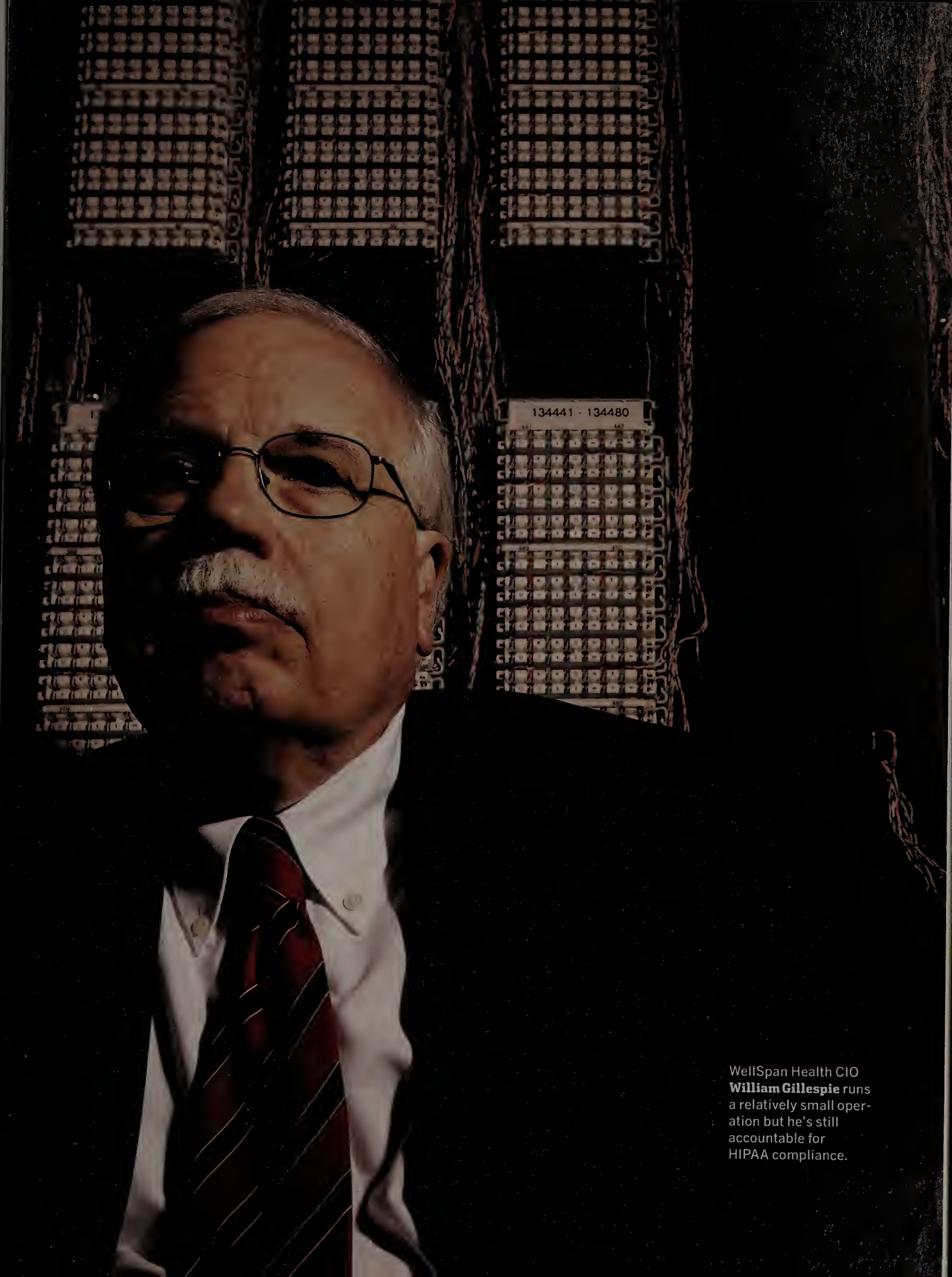
Stanley "Stash" Jarocki is used to getting plenty of attention. Once the VP of IT security at Morgan Stanley, Jarocki knows what it's like to manage a staff of dozens at a Fortune 50 company that spends millions of dollars on technology. When he called a vendor, the vendor answered. Quickly. "I'd pick up the phone, and the company—service provider, hardware provider, software provider—would be in the door tomorrow, today," Jarocki says.

But that was then. Jarocki has had to change his tactics and expectations now that he works in one of the trickiest spots in security: right in the middle. He is senior VP and information security officer of New York City-based Bessemer Trust, a privately held wealth management company with \$40 billion in assets and just 600 employees. When it comes to information security, analysts say, working at this size company can be the worst of both worlds.

"The companies are often big enough to be targets, but not necessarily big enough to have the

Reader ROI

- :: The biggest security challenges at mid-size businesses
- :: How mid-market CIOs get by with incredibly lean staffs
- :: Why smaller companies rely so much on outsourcing



134441 - 134480

WellSpan Health CIO
William Gillespie runs
a relatively small oper-
ation but he's still
accountable for
HIPAA compliance.

staff and the budget to do security well," says John Pescatore, a vice president at research company Gartner. "They often don't have strong IT discipline, and that causes all sorts of security problems. But they're big enough to be targets of cybercrime—somebody saying, Let me go after this plumbing supply company. It's not so big, but maybe I can find a credit card file." What's more, mid-market organizations may face the same bevy of regulators as companies 10 times their size.

But the smaller guys—that is, companies with revenue between \$100 million and \$1 billion—are being pushed to get better at security. And the best among them have tips about managing security on a budget that even CIOs with gargantuan budgets could learn from. Here are three ways they're doing more with less.

1) Find good generalists—and know when it's time to call in extra help.

When Robert Lewis, CISO of Cambridge Health Alliance in Cambridge, Mass., was nominated for Information Security Executive of the Year for the New England region, he remembers going to the gala affair and watching the CISO of State Street pick up the award.

"Her staff in security was larger than our entire IT department," recalls Lewis, who is also director of telecommunications and network services at the nonprofit group, which has annual revenue of \$466 million.

The biggest challenge? Finding and keeping a small stable of talented security employees who are jacks-of-all-trades, in a marketplace that values specialization. "In a very large organization, your security group will have a huge amount of specialization," says Jim Reavis, founder of an eponymous security consulting group. At small companies, by contrast, "You have people who wear a lot of hats." Mid-market organizations are lucky to have even a couple of people whose jobs are entirely devoted to information security.

But having generalists on staff isn't a bad thing, mind you. "In many cases, generalists are able to address business problems better," says Christofer Hoff, who until late 2005 was CISO of WesCorp Federal Credit Union, which had 2004 revenue of \$500 million. (Hoff is now chief security strategist at Crossbeam Systems, a threat management vendor.) A lean staff of generalists also can help keep headcounts low and costs down, with organizations bringing in extra help as needed.

"In past lives," Hoff continues, "I've been blessed with smart generalists who realize that at times when they don't have the skill sets, they [can] raise their hands and suggest that we need to augment our skill sets. I'd rather have that than a guy who can only fire a bow and arrow. What happens when he runs out of arrows?"

At Cambridge Health, Lewis doesn't worry about his group's two security engineers needing only arrows. They advocated, for instance, that the organization's approach should be to keep things simple by focusing on security "appliances"—products that do one thing, like content filtering or intrusion detection, but offer lit-

Mid-Market Snapshots

What's information security like in the mid-market? Anil Miglani, senior VP at Access Markets International Partners, a consultancy that specializes in small and midsize businesses, provides this snapshot.

Total employees: 100 to 999

Average annual IT budget: Approaching \$667,000, with significant variations based on size and industry.

Percentage of IT budget spent on security: 3%, with more security-conscious businesses spending two to three times as much as others.

Security leadership: CIOs may function as CISOs. CISOs are generally present only at the larger end of the spectrum or in regulated industries such as finance and insurance.

Major challenges: Limited staff; security products designed for larger enterprises may be difficult to scale down; business may lack adequate backup systems.

Tactics: The trend is toward outsourcing security, storage and disaster recovery, and using integrated products that provide more functionality.

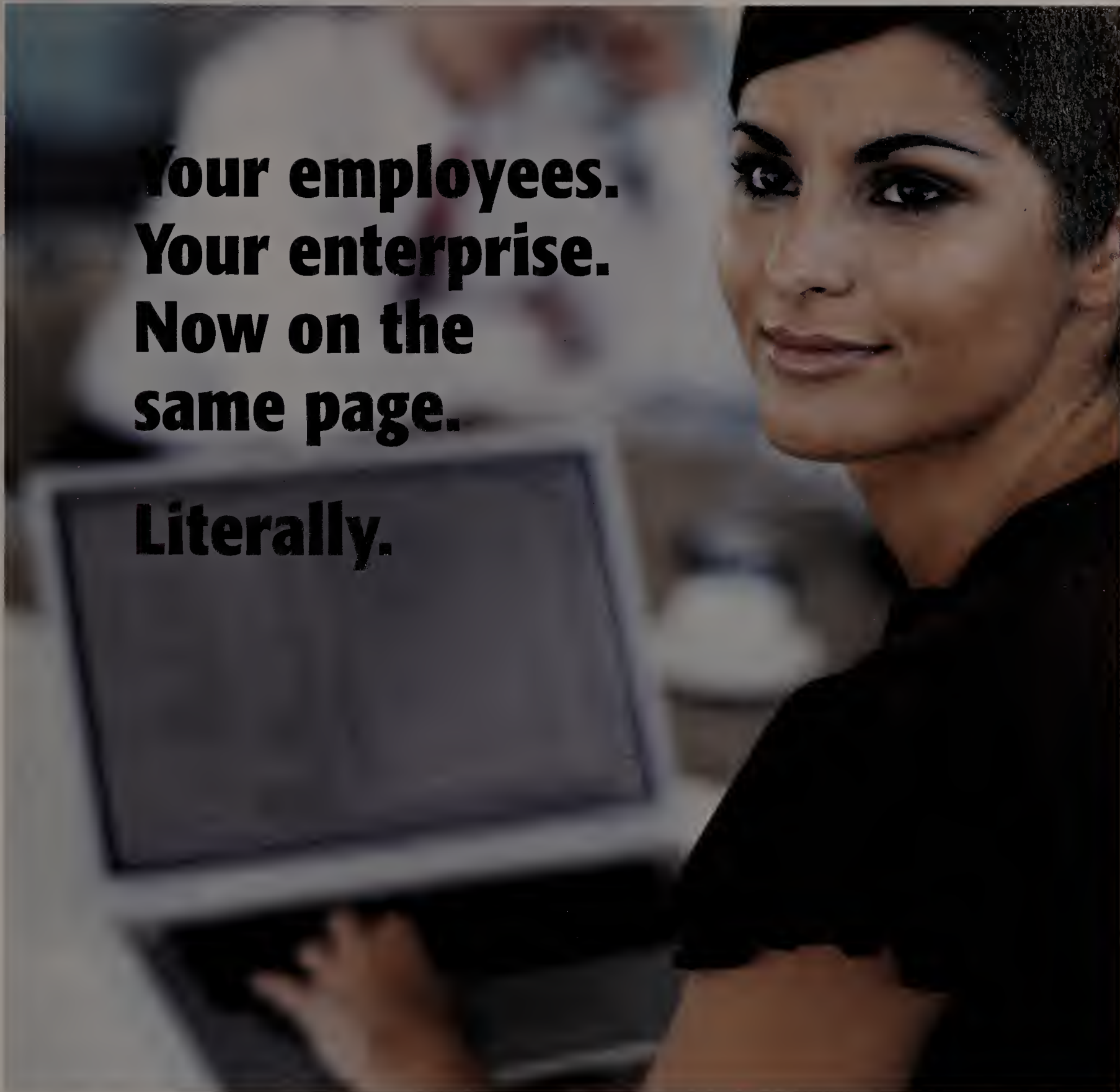
tle customization. Because the appliances stand alone instead of running on a server, when something goes wrong there's no question about whether the problem lies, say, with the operating system or another piece of software.

"It just does what it does," Lewis says, describing such an appliance, "and if you have a problem you call the vendor. By its very nature it's intended to be robust, basic. It's a workhorse." This approach means that even a small staff can keep the organization's security defenses up and running.

At some midsize businesses, the entire security staff is made up of generalists in a broader sense—meaning that their responsibilities are not just in security. At Dallas-based Hudson Advisors, for instance, CSO Mark Lynd is also the global chief technology officer. Lynd, who is a certified information systems security professional (CISSP), spends maybe 60 percent of his time on security; the rest is spent on technological and operational duties. His staff of four, one of whom also is a CISSP, each spend about 40 percent to 50 percent of their time on security.

"We do that because we're so decentralized," says Lynd, whose company, a fast-growing mortgage servicer and real estate management firm with annual revenue of \$130 million, has seven data centers, including ones in Guadalajara, Mexico; Taipei, Taiwan; and Frankfurt, Germany.

Lynd has the equivalent of two full-time staff in Dallas, with two others in the field. He could, theoretically, have one of his Dallas staff devoted 100 percent to security. But by having each person



**Your employees.
Your enterprise.
Now on the
same page.**

Literally.

Introducing Duet™ for Microsoft® Office and SAP®.

Microsoft and SAP have come together in an unprecedented alliance to put the power of SAP applications at the fingertips of Microsoft Office users. Duet lets employees access and interact with key SAP business processes while in their familiar Microsoft Office environment. It was designed to help boost productivity and increase policy compliance — without additional training. Go online today to view a demo at duet.com

Microsoft®



Mid-Market Security

spend 60 percent of his time on security, Lynd ensures that there can be round-the-clock coverage.

Another tactic: The IT manager at each of Hudson Advisors' data centers has security built into his job responsibilities. And when Lynd needs further expertise, he calls in consultants from DynTek, a Calif.-based technology service provider.

2) Make the most of VARs, which have become more about "value added" and less about reselling.

Now that Jarocki doesn't work for a Fortune 50 company that rockets him to the top of a large service provider's call-back list, he has found that the way to get plenty of attention for his organization is to not work directly with manufacturers at all. Instead, he has turned increasingly to value-added resellers, or VARs. These often regional companies sell products from the biggest security and information technology manufacturers but add their own expertise.

For instance, Jarocki works with AlliantWare, a division of Alliant Technologies, which sells products from Hewlett-Packard, RSA, Symantec and others. He also works with Calence, which has offices in New York and specializes in Cisco and intrusion detection monitoring systems.

Jarocki says that some VARs focus on mid-market organizations and are often able to give smaller companies more attention than the big vendors can. The trick, as usual, is picking the right ones and then the right technologists from within them. To do this, he relies on recommendations both from peers and from the manufacturers themselves.

"They're used to helping smaller organizations, so they understand our problems," Jarocki says, speaking about the VARs Bessemer works with. "They have well-trained people certified in the products that we use. They're providing a quality knowledge base, but you have to pick and choose from those people."

The approach is pretty typical, according to James Browning, a vice president of Gartner's Small and Midsize Business Research Organization. "Networking and security are two prime areas where [small and midsize businesses] buy all those products and solutions and services through a VAR, because A) they don't have the resources to install, deploy and manage it [all] on their own, and B) most of these projects are more complex than the staff can handle on their own.



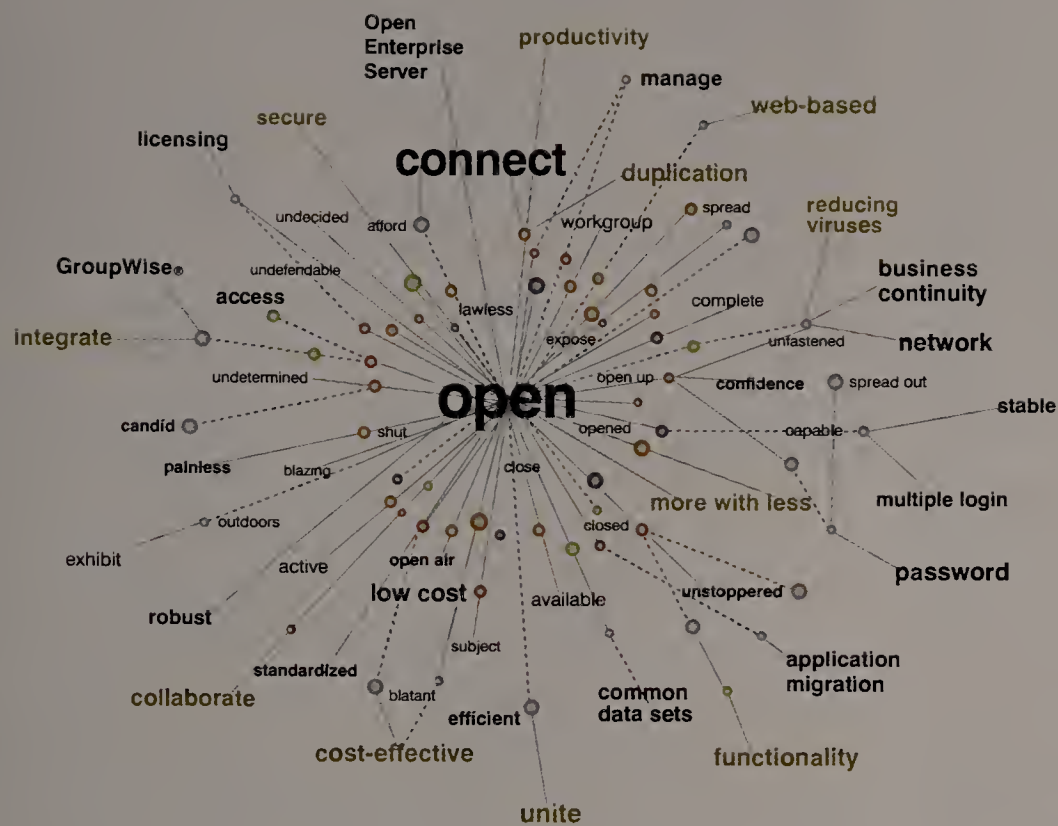
Stanley Jarocki, information security officer at Bessemer Trust, believes that the future promises more Sarbanes-Oxley-type regulation, not less.

"The VAR will basically come in and tell the [small business], You should do these two things this year and these two the next," Browning says. "They're serving the roles of consultant, adviser and integrator. They're the folks that are actually deploying this and training the internal IT staff on how to manage it."

Observers say they expect the trend going forward is for VARs to do more, not less—largely because the VARs have learned that the margins on consulting are so much larger than on simply bundling and reselling software or other goods.

3) If you can't buy it, share it (especially when it comes to compliance expertise).

In days gone by, Jarocki used to have a sizable research budget. Now, though, the best research information he gets is not from pricey consultants but from his peers. "You have to network to the nth degree, and listen to what other people are doing," Jarocki says.



DEFINE YOUR OPEN ENTERPRISE™

In my Open Enterprise, productivity is up because workgroup solutions actually work the way groups want them to.

People are more productive when they have the tools and support they need to work more efficiently. Workgroup solutions from Novell® unite infrastructure, services and tools with unmatched security and reliability. Regardless of location or device. Our full suite of networking, communication and collaboration services support more users on a single server, simplifying administration and significantly reducing costs. So you can communicate and collaborate the way you want, wherever you want—for a lot less than you'd think.

Workgroup solutions from Novell.

This is the way to connect your Open Enterprise.

Novell®

This is Your Open Enterprise.™

www.novell.com/connect

"You read enough that you finally go to your peers that have implemented something and you say, What did you go through? Then you hear if a product didn't work."

Jarocki is a cofounder of the Financial Services Information Sharing and Analysis Center (an industry group), so he has plenty of contacts in the industry. And nowhere does his networking pay off more than in dealing with all the regulators that Bessemer, as a brokerage, must answer to—agencies as wide-ranging as the Treasury Department's Office of the Comptroller of the Currency to the NASD (formerly the National Association of Securities Dealers).

"You listen to what [the regulators] said the year before, and you talk to your peers to see what they're looking for this year," Jarocki says. "There are high points. The high points right now are intrusion detection—they want to know if any client data is being hacked. They're hot on business continuity. The other one is controls—they look at internal controls, access control." He uses the information he gleans to focus his energies. "You go down [the list] and say, Gee, what am I doing in that area?" This is one reason why his one full-time security employee, who has a broad skill set, is getting extra training in business continuity.

For mid-market companies—especially ones that have to comply with the Sarbanes-Oxley Act—putting in place a strategy for efficient regulatory compliance is key. "For the ones that are publicly traded, Sarbanes-Oxley has thrown a wrench in the works," Gartner's Pescatore says. "If you're a publicly traded company doing \$100 million in business a year and being hit with the same audit capacity that GE's being hit with, that's awful."

Pescatore says that some small companies are talking about being delisted so that they don't have to comply with Sarbanes-Oxley, but he notes that these difficulties soon may lessen a bit. In December, an advisory panel to the Securities and Exchange Commission recom-

mended that the SEC ease the auditing requirements for companies with revenue of less than \$250 million.

But Jarocki, for his part, is prepared for more regulation, not less. "The auditors have taken Sarbox, they've

taken the [Gramm-Leach-Bliley Act], and melded the two together and said, Here's our audit program," he says. "Now you tell me I'm not being held to Sarbox, and I'll say phooey on you. The bottom line is, if an organization wants to be properly run, you go for the best you can. You go for the best controls in place because you want the company to stay around."

Another growing point of pressure: the security requirements of larger business partners. Says consultant Reavis, "Larger companies looking at their supply chains are concerned about risk, but cutting off a partner from their supply chain is not feasible." For instance, Visa is trying to improve security among merchants and payment processors with its PCI data security program. "That's where you're going to see a pain point for the midsize companies."

Mid-Market Challenges

Find out what mid-market companies are up against. Read "Special Report: Mid-Market CIO" at www.cio.com/specialreports.

CIO.COM

THE MID-MARKET SECURITY CUP:

Half Full or Half Empty?

Half Full: "Midsize businesses can have a greater handle on where the valuable data resides.

There are fewer endpoints. Some medium-sized companies were able to leapfrog some security issues because they weren't so bogged down by older legacy applications. They have the ability to be more agile."

—Jim Reavis, founder of Reavis Consulting

Half Empty: "The hackers have begun to move away from bigger firms, and they have taken what they've learned and are applying it aggressively to the mid-tier. There is no longer an economic incentive to go big. Many criminals now are beginning to prefer the midsize companies, who may be less likely to hire private investigators or attorneys to seek recourse."

—Josh Daymont, director of research for SecureWorks

Some of the regulations have had a positive effect. At WellSpan Health, VP and CIO William "Buddy" Gillespie says that the Health Insurance Portability and Accountability Act, or HIPAA, was a major driver for the IT group to get funding for security and disaster recovery. Gillespie has an IT security manager who also has a dotted line reporting relationship to the director of compliance for WellSpan, a nonprofit health-care system with two hospitals and about \$619 million in annual revenue. That manager has four full-time employees whose primary responsibility is ensuring that any information that's considered protected health information under HIPAA is kept confidential.

What all this amounts to is that mid-market information security organizations are being forced to play catch-up with their larger brethren. In fact, Lewis's approach is to benchmark Cambridge Health not against other regional hospital groups, but against much bigger, for-profit organizations that have a lot more resources.

"It's good to watch the people who have the money and watch the decisions that they make and try to learn from that," Lewis says, noting that he does this by reading trade publications, talking to peers and attending meetings of professional associations such as the Information Systems Security Association. "We follow what banking and investment houses do, because they can afford much more. We try to learn from that. Then we have to face reality based on what we have and say, How closely can we align ourselves to the best practices at the top financial houses? We're striving for that. It's way beyond what we can afford, but it gets us thinking." **CIO**

Sarah D. Scalet is a senior editor for CSO, a CIO sister publication. She can be reached at sscalet@cio.com.



Having trouble locating orders?

With webMethods, you'll improve process visibility so you never lose a sale. What if your order booking systems and processes could talk to you—in real time? What if they could help you avoid delivery delays, prevent missing orders and help you deliver on promises to customers? Learn how by watching, "Achieving the Perfect Order-to-Cash Process" Webinar series at www.webMethods.com/4DDEWebinar.

webMethods®
Get There **Faster™**
www.webMethods.com

WHO OWNS THE NET?

The idea that all information traveling across the Internet gets treated equally will soon go the way of Pets.com. And that means the way you do business is about to change.

BY BEN WORTHEN

LAST APRIL, CISCO SYSTEMS PUBLISHED A WHITE PAPER

explaining how the companies that own the phone lines and cables that connect homes and businesses to the Internet—the proverbial last mile—could use new routing technology to boost revenue. The technology would allow telephone and cable companies to establish priority lanes for high-bandwidth traffic like video, games, or voice-over-IP (VoIP) calls and then charge the Googles, Yahoos and Amazons of the world for access to these highway toll roads. Cisco's paper predicted that this new strategy would allow broadband service providers to create new revenue-sharing business models with any company that sells content online.

The plan had only one problem: It was illegal.

The telecommunications laws that have governed the Internet since its inception require network owners to treat all traffic the same. The laws date to the 1930s and were put in place to force telephone companies to prevent a scenario where one company could refuse to carry calls placed by a rival's customer. The Internet was designed with the same principle in mind. Routers are programmed to direct each packet of data on a best-effort basis, regardless of file type—video, voice, e-mail—or who the sender and recipient are. In the online world, this is called network, or net, neutrality, and last summer, it was the only thing standing between the telecommunications companies and a vast new revenue stream.

Since then, a Supreme Court ruling and a series of Federal Communications Commission (FCC) decisions have eliminated this barrier, prompting Congress to rewrite the nation's

telecommunications laws. The new bill, expected to be finalized later this year, will in all likelihood officially eliminate net neutrality as the legal principle that governs the Internet. "If net neutrality

goes away, it will fundamentally change everything about the Internet," says James Hilton, associate provost for Academic IT Works of the University of Michigan.

The impact of these changes on CIOs and their companies will be profound. The telecommunications and cable companies argue that allowing them to govern their networks as they see fit gives them a financial incentive to innovate at the core of the network, and develop new technologies that could guarantee things that CIOs want, like security and better quality of service. Proponents of net neutrality counter that the principle is the reason that the Internet and the corresponding online ecosystem have developed into the com-

Reader ROI

- ⌘ Why the end of net neutrality will make telecommunications strategic
- ⌘ How CIOs can prepare for the new Internet

mercial and cultural phenomenon they are today. They argue that without a level playing field, telecommunications companies will force content providers—a broad category that includes anyone with a website—to pay up or see access to their content shifted to the slow lane.

The new Internet will certainly make telecommunications decisions more strategic. CIOs will not only need to worry about how much bandwidth to buy, but which lane they want their traffic to travel in. And tiered service is just the beginning. Telecommunications companies will be able to rearchitect their networks however they see fit. Over time, the new architectures and the services that network owners deliver will result in complicated payer/payee relationships between content providers and network owners. And if a telecommunications company decides it wants to introduce a new Internet standard, CIOs may be forced to rearchitect their company's systems.

The common thread is money. For all the talk about equal access and treating all data the same, the net neutrality debate is just window dressing for a less gentlemanly argument over who gets to profit in the online economy. More bluntly, Steve Effros, former president of the Cable Television Association, says, "This is about who pays."

Making the Content Providers Pay

The current telecommunications act, which was written in 1996, was designed to help local phone companies compete with the baby bells. The 128-page law mentions the word "Internet" a grand total of 11 times, generally treating it as a curiosity, albeit one with potential. Today, that curiosity has evolved into the world's dominant commerce and communications platform. And instead of a battle between small and large phone companies, the competition that emerged in the telecommunications industry is between cable and telephone companies, and the service they are vying to provide is not just phone, but high-speed Internet access and television as well—the so-called triple play.

In June 2005, the Supreme Court ruled that the service cable companies sold was an information service, not a telephony service, and hence isn't covered by telecommunications law. In order to address this imbalance within the new cable/phone competitive landscape, the FCC declared that the high-speed DSL connections offered by the telephone companies were also information services. The result is that the entire Internet is now essentially outside the law.

Amid all this legal chaos, the telecom and cable providers are still struggling to figure out how to profit from the vast new market for online services. The three largest telecommunications companies—Verizon, AT&T and Bell South (which was bought by AT&T pending regulatory approval)—all had their profits drop in 2005, the latter two by double-digit percentages. Comcast, the nation's largest cable company, saw its profits shrink by 4.3 percent. In contrast, content providers are taking it to the bank. Google's profits increased 267 percent, Yahoo's 126 percent and eBay's 39 percent. Google, whose \$6.1 billion in revenue is less than half of Qwest's and one-twelfth of Verizon's, has a market cap higher than any telecommunications or cable company.

It's no surprise that the carriers might be a little jealous of the new economy wunderkinders. In one less guarded moment, Ed Whitacre, now the CEO of AT&T (at the time he was the CEO of SBC, which bought AT&T but adopted its name), told *BusinessWeek* last November what he really thought of companies that publish content or host applications: "They don't have any fiber out there. They don't have any wires. They don't have anything," Whitacre said. "For a Google or a Yahoo or a Vonage or anybody to expect to use these pipes for free is nuts!"

HOW TO GET READY FOR THE NEW NET

Though the dust hasn't settled, there are steps CIOs can take to ready their company for the new Internet

1

It's not too late to make your voice heard. If you feel strongly about net neutrality, have your CEO call your congressional representative.

2

Figure out if any of the services you offer on your website would benefit from a higher quality of service, and then be prepared to negotiate.

3

Bring telecommunications decisions in-house. It might be a commodity market now, but soon you will be negotiating for more than just bandwidth.

4

Let your CEO and CFO know what is going on. It might be years before a carrier tries to sell you on a tiered service, but if you don't warn other executives now, the new costs will come out of your budget.



How paper from Oberkirch reaches the four corners of the globe. Without interruption.

The Koehler Group in Oberkirch, Germany is one of the world's largest makers of specialty paper, used to make everything from airline tickets to Pokémon cards. Managing their output takes continuous 24/7 production—and HP Integrity servers with Intel® Itanium®2 processors. "We produce and ship over 1,500 tons of paper each day. A moment of downtime means production must stop," says Bruno O. Schwelling, CFO. "Itanium-based HP Integrity systems have virtually eliminated that fear." itanium-integrity.com

ITANIUM + INTEGRITY. ON AND ON AND ON.



The Road to Riches

Whitacre's frustration may soon be a thing of the past. Telecom officials argue that they need to be able to treat different types of data differently in order to meet the demands of today's and tomorrow's high-bandwidth traffic. "Some products are only useful if they come as a constant bit stream, like IP TV, video gaming and, to a lesser extent, voice over IP," says Bill McCloskey, director of media relations for Bell South. "If you are watching the Super Bowl on an IP TV, and someone down the street decides to download a tune, we think that the video signal should have priority. The small delay for the tune just doesn't matter, and it would matter even less for an e-mail. But it matters to a video signal."

So using the vision outlined in the Cisco white paper, the telecoms are proposing that they build dedicated lanes on the Internet for high-bandwidth traffic. The rub is that these lanes will be toll lanes, with companies needing to pay for access. The telecommunications companies say this pay-to-play model gives them an economic incentive to innovate on the network itself, which will lead to services that businesses will want. AT&T declined to be interviewed for this story. However, in a prepared statement, AT&T said: "We will succeed or fail based on whether or not other providers see value in engaging in commercial agreements that enhance their content or applications. And that means not just capacity or speed, but guaranteeing things like security against viruses, worms and spam."

Christopher Yoo, a professor at Vanderbilt Law School whose research is sponsored in part by the National Cable and Telecommunications Association, thinks that as telecommunications companies move to this tiered approach, complicated payer/payee relationships will evolve, with content providers and network owners negotiating based on their relative strengths in the market. This happens now in the cable TV world. The cable carriers pay channels with large audiences such as ESPN about \$2.50 per

subscriber and an established niche channel without a large following such as Oxygen about 25 cents. And not only would cable carriers not pay a brand-new channel anything, but in all likelihood, that channel would have to pay the cable carrier promotional fees to use its pipes.

A better analogy for the telecommunications companies' plan to offer tiered services might be the relationship between a food manufacturer and supermarket, says Yoo. The manufacturer will pay the super-

For all the talk about equal access, the net neutrality debate is just window dressing for a less gentlemanly argument over who gets to profit in the online economy.

market more money for better shelf positioning. In this example, both the food manufacturer and the supermarket have the same goal: to sell more food. The argument, says Yoo, is over how to break up the profits.

If the telecommunications companies develop the online equivalent of the eye-level shelf, CIOs will have to give up a percentage of their companies' profits to be placed there. If this new arrangement results in significantly more sales and revenue for a company, most probably won't mind paying the extra freight. But there's no guarantee these new charges will result in additional business, and it will be years before anyone knows whether the juice is worth the squeeze.

Even so, the telecommunications com-

panies all agree with AT&T that "this is an issue best left to the marketplace."

The Elephant in the Room

The problem is that the telecommunications marketplace is fast consolidating. The proposed AT&T/Bell South merger means that the 10 regional phone companies that emerged from the Ma Bell breakup will have shrunk to three in less than a decade. And the new AT&T will be twice as big as all the cable companies put together. "A free market works as long as there is competition," the University of Michigan's Hilton says. Hilton and other proponents of net neutrality are concerned that giving carriers the right to decide how traffic flows over their networks will turn telecommunications companies into online kingmakers, giving them the power to decide who will be winners and losers online through the rates they charge and the speeds they deliver.

This kingmaker role greatly dismays content providers and other proponents of a free and open Web. "The Internet is the greatest engine of innovation we have ever seen because no one had control over it," says Art Brodsky, communications director for Public Knowledge, a digital rights advocacy group.

After all, Google and Yahoo are among the new economy's greatest success stories not only because they developed services that people want to use, but also because people had access to those services. What if a telecommunications company downgraded one of its services because it had a partnership with a rival? That's possible in a world without net neutrality. In fact, it is already happening. Clearwire, a wireless broadband provider, sells a VoIP service from Bell Canada and acknowledges blocking VoIP from other providers, as well as other high-bandwidth applications. Clearwire says it is allowed to do this because it sells an information service and thus is not covered by the Telecommunications Act.

More generally, net neutrality proponents argue that changes in the Internet's architecture could make it harder for the creation of new application innovations, yet such innovations—like e-mail, Web

Will There Be an Internet Monopoly?

Is telecommunications consolidation creating a monopoly on the backbone? Check out a **MAP OF WHO OWNS THE INTERNET** at blogs.cio.com/node/209.

CIO.COM

For outbound content security, Adobe Acrobat simply falls short.

Workshare
PROTECT ENTERPRISE SUITE

PDF conversion with full PDF security restrictions

Discovery, alerting and removal of confidential, private, financial and hidden information leaks

Endpoint- and network-based policy enforcement

Centralized policy management, reporting and auditing over multiple protocols

Don't just publish, Protect. Adobe will tell you that publishing with Acrobat makes your content secure. Not true. Read the headlines...

"Acrobat PDF Reveals Financial Projections, Suspending Shares of Global Bank"
—January, 2006

"Government Agency Leaks Top Secret Information in Acrobat PDF"
—October, 2005

"Mutual Funds Fined for Exposing Customer Personal Identity Information in Acrobat PDFs"
—March, 2005

Find out why over 1000 organizations use Workshare Protect to stop personal, financial and regulated content leaks. Workshare Protect secures against leaks of visible and hidden data while ensuring security policy compliance. Even better, Workshare Protect replaces costly Acrobat deployments on every desktop at a fraction of the cost. **Don't let your organization fall short! Try or buy today at www.workshare.com/cio**

Microsoft
GOLD CERTIFIED
Partner

SC
MAGAZINE
BEST OF
2005

Workshare

WWW.WORKSHARE.COM/CIO

browsers, Ajax and new search capabilities—are responsible for most of the Internet's growth to date. In addition, something as complicated as changing how the core of the Internet works doesn't happen overnight. Indeed, some of the telecoms' attempts to develop new network technologies for the core of the Internet have been less than successful. For instance, network-based standards that the telecommunications companies introduced, like ATM and IP multicasting, were supposed to revolutionize the Internet by guaranteeing quality of service. Instead, they proved to be so expensive that they never caught on outside of the telecommunications companies' own networks and a handful of private corporate networks.

In addition, while a network owner like AT&T is busy experimenting with different architectures, device and application makers would be forced to delay releasing their innovative products until they knew how to make them compatible with the new network technology, says Gary Bachula, vice president for external affairs for Internet2, the ultra-high-speed network that connects more than 200 colleges and universities. Furthermore, letting network owners adopt different standards will inevitably lead to interoperability problems, proponents of net neutrality argue. Look no further than the wireless phone system, they say. The United States had competing and incompatible standards for years. Even today, phones that use U.S. networks don't work in Europe and other parts of the world. The introduction of a new IP by a telecommunications company could have the same effect.

"It is not inconceivable that the optimal number of networks may be greater than one," Yoo says. In general, he adds, it is in network owners' best interests to make their product compatible with everyone else's. However, if people develop a new technology that they believe is a large enough improvement on what came before, Yoo argues they should be free to try to sell it and let the market either punish or reward the decision. And that prospect

concerns CIOs and other observers.

"If you had to have a different architecture for every single provider that is out there, it would mean Balkanization of the Internet," Bachula says.

How to Navigate the New Terrain

One thing's for sure: It will be up to the CIO to make sure that his company can negotiate the new landscape. Tiered service alone "is going to transfer a lot of responsibility to the [CIO]," says Steve Novak, CIO of the law firm Kirkland and Ellis. Telecommunications costs will go up, and these decisions will become more strategic, says Novak, because they will no longer just be about how much bandwidth to buy, but also what level of service to purchase from each carrier.

John Ambler, an Accenture consultant who is in charge of telecommunications decisions for the state of Arizona, says that lack of security and the inability to deliver high-bandwidth traffic without interruption are obvious problems for CIOs. And if the network owners build and sell a solu-

Some argue that giving carriers the right to decide how traffic flows over their networks will turn them into **online kingmakers**.

tion to these challenges before application vendors do, so be it, says Ambler. "If I have an expanding business or I create a [high-bandwidth] application, I'd gladly pay for better service," he says.

Hilton, on the other hand, worries that paying for improved services is positive spin on a more sinister reality. "Frame it the other way," he says. "Would you pay to prevent someone from degrading your service?"

Longer term, a telecommunications company may try to introduce a new standard—having the freedom to do so is an explicit part of the telecommunication industry's vision. And as Bachula suggested, CIOs

would then need to rearchitect their systems so they work with more than one network technology. "Everything we do is IP-based," says Novak. "The investment [required] to move from the IP standard would change a tremendous amount for us."

Hilton says that he likes the idea of better networks; after all, it's impossible to come out against innovation, but he worries that if a company the size of AT&T decided to introduce its own standard, it wouldn't necessarily have to be a better technology. CIOs would be forced to adjust their applications to conform to the new standard simply because of AT&T's market share. "The last thing I want to do is negotiate a bunch of closed proprietary networks," says Hilton.

The Legislature Picture

Such arguments are already being aired in the halls of Congress. But between the money involved and progression of draft legislation, it doesn't look good for net neutrality advocates. The U.S. Telecom Association alone spent more than \$16 million on lobbying in 2005. AT&T spent more than \$11 million, Verizon at least \$7.5 million [Verizon's filing is incomplete] and Bell South \$7.4 million. In contrast, Microsoft, which spent \$8.7 million, was the only proponent of net neutrality to break a million.

Not surprisingly, drafts for a new Telecommunications Act have had progressively fewer protections for net neutrality. An early version adopted the term, a later version watered down neutrality protection, and the most recent draft didn't have any at all. Even the most hard-core advocates see the handwriting on the wall. "We're up against a bigger, more powerful player," says Public Knowledge's Brodsky.

In the meantime, CIOs need to prepare for an Internet and economic arrangements that will be quite different. And for CIOs who don't want to pay? Tough luck, says Vanderbilt's Yoo. "No one ever promised that the business environment that you started in will be the business environment of tomorrow." **CIO**

Senior Writer Ben Worthen can be reached at bworthen@cio.com.



**YOUR JOB IS TO KEEP SYSTEMS AND APPLICATIONS RUNNING.
OUR MISSION IS TO KEEP PEOPLE AND INFORMATION CONNECTED.
LET'S WORK TOGETHER.**

Continuous access to information no matter what. That's Information Availability. It's what your employees, suppliers and customers demand every minute of every day. But to deliver it flawlessly, you need a massive global infrastructure, redundant systems and diverse networks being monitored and supported by skilled technical experts at secure facilities. That's exactly what SunGard provides.

As a result, we can offer you a higher level of availability and save your company, on average, 25%* versus building the infrastructure yourself. Plus, it's a vendor neutral solution that lets you control your data, applications and network while giving you the flexibility to adjust to the changing needs of your business. But best of all, it lets you spend more time solving business problems and less time solving technical problems.

For years, companies around the world have turned to SunGard to restore their systems when something went wrong. So, it's not surprising that they're now turning to us to mitigate risk and make sure they never go down in the first place.

You want your network and systems to always be up and running. We want the same thing. Let's get together. To learn more, contact us at 1-800-468-7483 or go to www.availability.sungard.com/masteria and get your free copy of the book "Mastering Information Availability."

SUNGARD® Keeping People
Availability Services and Information
Connected.™

*Potential savings based on IDC White Paper, Ensuring Information Availability: Aligning Customer Needs with an Optimal Investment Strategy.



SALES AND SERVICES

CIO SALES OFFICES

President and CEO

Michael Friedenberg
508 935-4310

Publisher

Gary J. Beach
508 935-4202

EAST COAST

VP Sales, East

Bob Bragdon
508 935-4443

Regional Sales Manager

Ellie St. Louis
201 634-2332

NEW ENGLAND

Senior District Sales Manager

Andrew Haney
508 935-4586

Sales Operations Manager

Dawn Cora
508 935-4092
Fax • 508 879-6063

NORTH CENTRAL

Regional Sales Manager,

Southwest

Beth DeVillez
847 759-2727

Advertising Sales Associate

Kim Giovanni
847 759-2728
Fax • 847 759-2729

WEST COAST

VP Sales, West

Bob Melk • 415 975-2685

Senior Regional Sales

Manager

Ai Collins • 415 975-2686

Regional Sales Manager

Kevin Ebmeyer • 415 975-2684

Account Executive

Derek Jung • 415 975-2683
Fax • 415 543-2358

Senior Account Executive

Sara Mascall • 415 978-3385

Ad Sales Associate

Devon Slattery • 415 975-2687

SOUTHERN CALIFORNIA

Regional Sales Manager

Kevin Ebmeyer • 415 975-2684

ONLINE SERVICES

VP, Integrated Media

and Online Sales

Jim Alla • 508 988-6763

Western Online Sales Manager

Jennell Hicks • 415 243-8585

Online Account Executive

Danielle Tetreault
508 988-7969

Online Client Services

Specialist

Valerie Sumner • 508 988-7877

Online Sales Administrator

Anne Butera • 508 988-6823

CUSTOM PUBLISHING

VP of Program

Development, IDG

Charles Lee • 212 867-1229

VP, Integrated Media

and Online Sales

Jim Alla • 508 988-6763

Director of Sales

Mary Gregory • 508 988-6765

Executive Editor and Director

of Operations Tom Field

Director, Integrated Project

Management Mo Barrett

Managing Editor Jim Malone

Senior Project Manager

Amy Greenleaf

Project Managers

John Danielowich,
Jon Heinrich

LIST SERVICES

Contact Paul Capone of IDG

List Services at 508 370-0865
or pcapone@idglist.com.

REPRINT SERVICES

For article reprints (100 quantity or more), please contact Jennifer Eclipse at PARS International at 212 221-9595 x237 or via e-mail at jeclipse@parsintl.com.

CIO is published in the U.S. as well as in:

Australia, CIO Australia

www.idg.com.au

Canada, CIO Canada

cio.itworldcanada.com

China, CEO & CIO China

www.ceocio.com.cn

France, CIO France

www.idg.fr/cio

Germany, CIO Germany

www.cio.de

India, CIO India

91-80-521-0309/12

Japan, CIO Japan

www.idg.co.jp

The Netherlands,

CIO Netherlands www.cio.nl

New Zealand, CIO New Zealand

www.idg.co.nz

Norway,

CIO Business Standard
www.business-standard.no

Poland,

CXO Poland www.cxo.pl

Singapore, CIO ACEN/

Hong-Kong www.idg.com.sg

South Korea, CIO Korea

www.cio.seoul.kr

Sweden, CIO Sweden

www.cio.idg.se

For further sales information:

www2.cio.com/marketing/aboutcio/contacts.cfm

CIO CONTACT INFORMATION

Editorial, Advertising and

Business Offices: CXO Media Inc.,

492 Old Connecticut Path, P.O.
Box 9208, Framingham, MA
01701-9208, 508 872-0080.

CIO (ISSN 0894-9301) is published semimonthly and as a combined issue Dec. 15/Jan. 1 by CXO Media Inc. Periodicals postage paid at Framingham, MA, and at additional mailing offices. Canada Publications Mail Agreement Number 1902075. CANADIAN POSTMASTER: Please return undeliverable copy to P.O. Box 1632, Windsor, ON N9A 7C9.

Permissions: Copyright 2006 by CXO Media Inc. All rights reserved. Reproduction of material appearing in *CIO* is forbidden without written permission. Send all requests to Yadira Pizarro, PARS International, 212 221-9595, Ext. 231, or yadira@parsintl.com.

Photocopy Rights: Permission to photocopy for internal or personal use or the internal or personal use of specific clients is granted by *CIO* for users through the Copyright Clearance Center, provided that the base fee of \$3 per copy of the article, plus \$.50 per page is paid directly to Copyright Clearance Center, 27 Congress Street, Salem, MA 01970. Please specify: ISSN 0894-9301. Permission to photocopy does not extend to contributed articles followed by this symbol: ‡.

Subscriptions: *CIO* is free to qualified information executives. To apply, use our online subscription form at www.subscribe.cio.com. Subscriptions are also available on a paid basis at a rate of \$95 for the United States and Canada, \$195 International (payable in U.S. funds only) and may be ordered online at www.subscribe.cio.com/services.html. Or address inquiries to *CIO*, P.O. Box 489, Northbrook, IL 60065-0489; 866 354-1125. Please allow four to six weeks for a new subscription to begin. The single copy price is \$9 for the United States and Canada, and \$15 International. Prepayment is required, payable in U.S. funds.

Change of Address: Please go to www.ameda.com/custsrv/cio and follow the online instructions.

Postmaster: Send change of address to *CIO*, P.O. Box 489, Northbrook, IL 60065-9816. Printed in the U.S.A.

INDEX OF COMPANIES AND ADVERTISERS

Page numbers refer to the first page of the article(s) in which the company has a substantial mention.

This index is provided as a service to readers. The publisher does not assume any liability for errors or omissions.

COMPANY INDEX

Accenture74
Access Markets International
Partners Inc.66
Alliant Technologies LLC66
Bessemer Group Inc., The66
Cambridge Health Alliance66
Chicago Mercantile Exchange Inc.45
Chubb Corp., The21
Cisco Systems Inc.74
Comcast Corp.74
Corning Inc.50
DynTek66
Edison International21
Franklin Resources Inc.21
Gartner Inc.66
Google Inc.74
Hudson Advisors66
INPUT50
iRobot Corp.21
Kirkland and Ellis LLP74
Lockheed Martin Corp.50
Mercury General Corp.21
Microsoft Corp.74
Reavis Consulting Group66
Robotics Trends21

SecureWorks Inc.66
Sidney Austin LLP14
Sony Corp.21
Time-Warner50
TriWest Healthcare Alliance14
Verizon74
WellSpan Health66
WesCorp66
Westcorp Inc.21
WFS Financial21
Yahoo Inc.74

ADVERTISER INDEX

Apani Networks Inc.44
AT&T4
Business Objects65
CAC4
CDW Corp.39
Cognos Inc.37
Compuware Corp.35
CXO Media Inc.25, 56, 83
EMC² Corp.41
ESRI15
Fortify Software Inc.23
Fujitsu Computer Systems Corp.33
Hewlett-Packard Co. (regional)7

Hyperion Solutions Corp.16
IBM Corp.24a
IBM Corp. (regional)56
Information Builders59
Intel Corp.2, 77
Internet Security Systems19
Kyocera Mita Corp.55
Mercury49
Microsoft Corp.C2, 8, 43
Motion Computing Inc.47
Motorola Inc. (regional)63
Novell Inc.71
RightNow Technologies Inc.30
SAP69
SAS20
Siemens Corp.27
SSA Global Technologies Inc.61
Sterling Commerce11
Sun Microsystems Inc.C3
SunGard Availability Services81
Sybase29
Verizon53
webMethods Inc.73
Workshare79
Xerox Corp.12

It starts with a challenge.
Then comes the idea.

Find out what comes next at
CIO 100 Symposium & Awards,

www.cio.com/conferences

Presented by



The Glue Gun and Other Sticky Stories

Tracking technology is getting cheaper and easier to implement every day. As a result, separating truth from science fiction is getting more difficult. See if you can tell which of these stories are the real deal and which are gags. Answers below.

1) Suspicious wives and girlfriends in Korea can use GPS-enabled cell phones to keep a watchful eye on their husbands and boyfriends. And to avoid being caught at the local bar rather than at the office, our source in the cell phone industry says, some of these men have begun paying people to carry their phones to less risky places during their after-work carousing. "The bar? No, sweetie! I'm still at the office! See?"

2) Tiny, wealthy Manalapan, Fla., has installed infrared security cameras that record every car that drives through town while software checks the plate numbers against law enforcement databases. "Courts have ruled that in a public area, you have no expectation of privacy," said police Chief Clay Walker.

3) To avoid being tracked by a state-mandated GPS system, a Massachusetts snowplow operator allegedly left his GPS device in a paper bag by the side of the road while he ran off to work a private job. Another time, he reportedly handed his transmitter to a fellow snowplow operator. While the second driver followed the state-assigned route, the first pursued side jobs yet again.

4) In order to cut down on the number of dangerous, high-speed chases, Los Angeles police officers are testing a "glue gun" that can fire a sticky GPS transmitter at a fleeing vehicle. That way, the officers can track the suspect's vehicle without chasing it and putting lives at risk. (There's been no word yet on whether sales of Goo-Off adhesive remover have increased in high-crime areas.)

5) Security camera network operator CityWatcher.com has asked its employees to get RFID chips implanted in their arms to facilitate entry into the company's secure data centers. CityWatcher CEO Sean Darks says that the program is voluntary, and employees can easily have the chip removed if they desire. "The joke here is that we make them leave their arm," he says. Ha, ha. Ouch.



Answer: All these stories are straight out of the news. It's not paranoia if it's true.



5x the performance, 1/4 the size.*

**WITH A PROCESSOR THAT USES ABOUT
THE SAME POWER AS A LIGHT BULB.**

The new Sun Fire™ servers with CoolThreads™ technology.



Get a free 60-day trial
now at sun.com. **



© 2006 Sun Microsystems, Inc. All rights reserved.
*Performance based on customer testing. Power and space
saving based on comparing power supply ratings and size
rating of Dell PowerEdge 6850 to Sun Fire T1000 Server.
**Some restrictions apply. See sun.com for details.

CHANGE = STABILITY

If there's one constant in business today, it's change. But large or small, internal or external, change doesn't have to impede IT service delivery. Think of change as an opportunity for IT to satisfy fluctuating demand while maintaining a stable, productive work environment. With integrated CA software solutions for service management and service availability, you can unify and simplify the way you manage complex IT services across the enterprise. Anticipate and prioritize shifting demand. Automate processes to ensure timely delivery and reliability of service. And leverage industry best practices such as ITIL. It's all possible with our unique approach to managing technology called Enterprise IT Management (EITM). To learn more about how CA solutions can stabilize change to create a true service-driven IT environment, visit ca.com/deliver.

